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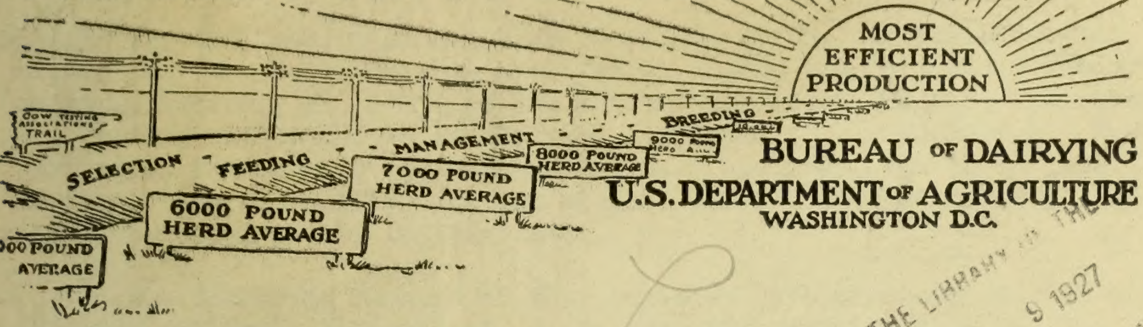
COW TESTING ASSOCIATION

THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

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No. 1. May, 1925.

COW-TESTING ASSOCIATION LETTER.

This issue will introduce to you a regular letter which the Bureau of airying hopes will accomplish much good as a medium for exchange of ideas on he operation of cow-testing associations.

At the regular meeting of the cow-testing association committee of the American Dairy Science Association in Milwaukee, at the time of the 1924 National Dairy Show, a resolution was adopted and sent to the Bureau of Dairying recommending that a field man be appointed for cow-testing association work. Mr. J. B. Parker of this bureau has been assigned to this work, with headquarters at Washington, D. C. His work will be done in cooperation with the men in charge of cow-testing association work in the various States, in the correlation of association operation, distribution of the forms, and investigation of the various association activities tending to a betterment of the work.

The committee has expressed the feeling that personal contact on the subject between this department and the various States would be of benefit to all concerned. Mr. Parker has already visited twelve of the States, and has attended the conference of the cow-testing association committee of the American Dairy Science Association, held in Chicago, February 23-25, 1925.

At the meeting of this committee an outline for cow-testing association operations was prepared covering the latest ideas of the extension men present, for submission to the American Dairy Science Association at its annual meeting this fall at the National Dairy Show in Indianapolis, Indiana.

The following is a report of the conference as submitted to us by the chairman, Mr. Baltzer, and is reproduced in this first cow-testing association letter for the information of others interested in this subject. Suggestions and recommendations concerning this report should be sent to the chairman of the committee, Mr. A. C. Baltzer, Extension Division, East Lansing, Michigan.

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Report and Recommendations of the Committee.

The Cow Testing Association Committee of the Extension Section of the American Dairy Science Association opened its conference Monday morning, February 23, 1925, at the Auditorium Hotel, Chicago, Illinois. The meeting was opened by Mr. Baltzer, chairman of the committee. The purpose of the meeting, as explained by the chairman, was to outline uniform rules and methods for the conduct of the cow-testing associations operating in the United States.

The following members of the committee were present: A. C. Baltzer, chairman, Michigan; A. J. Cramer, Wisconsin; and L. P. Emmerick, Virginia. E. A. Hanson of Minnesota, and C. R. Gearhart, secretary of the committee, were absent. Further, J. R. Dawson and J. B. Parker of the Bureau of Dairying, United States Department of Agriculture, Washington, D. C.; O. E. Reed, head of the Dairy Department, Michigan Agricultural College and President of the American Dairy Science Association; G. A. Williams, extension specialist in dairying, Purdue University; and H. E. Jamieson, extension specialist in dairying, University of Illinois, were present as advisory members.

The chairman called on Prof. O. E. Reed, president of the American Dairy Science Association, for remarks. Professor Reed stated that the cow-testing association work was being discounted in various States due to varying methods in use where the records were made. He emphasized the need, importance, and great value of a uniform set of cow-testing association rules whereby the cow-testing association records in any one State will become comparable with those made in other States. Professor Reed expressed the desire that the committee take the leadership in formulating a set of rules that would be submitted to the extension section of the American Dairy Science Association for final adoption by the American Dairy Science Association at its annual meeting next October at the time of the National Dairy Show.

Short talks were made by Mr. Parker and Mr. Dawson of the Bureau of Dairying. Mr. Parker stated that both Mr. Gearhart of Pennsylvania and Mr. Hanson of Minnesota, members of this committee and in charge of cow-testing associations in their respective States, were in full accord with the purpose of the committee meeting and that they would adhere to whatever action the committee might take. Mr. Dawson remarked that the committee could expect the fullest cooperation of the Bureau of Dairying, United States Department of Agriculture, Washington, D.C., on the work that the committee expects to do. Further that the bureau would endeavor to conform as closely as possible to the work outlined by the cow-testing association committee.

In the absence of Mr. Gearhart, Mr. Emmerick was made temporary secretary. The minutes of the last meeting were then read and accepted. The chairman then read the outlined program of work that he wished the committee to take action upon.

The following standard rules and regulations governing cow-testing associations were unanimously adopted by the committee and the advisory members present for submission to the extension section of the American Dairy Science Association:

- -

CONSTITUTION AND BY-LAWS
FOR A COOPERATIVE COW TESTING ASSOCIATION

Constitution

Article I. Name.

The name of this association shall be ....

.... Cow Testing Association.
(Suggest county and nearest town name)

Article II. Object.

The object of this association shall be to provide means and methods for improving the dairy herds of members. This will be accomplished through the keeping of production, feed, and income records of each cow, on the basis of which unprofitable cows may be eliminated and feeding done more economically.

Article III. Place of Business.

Its principal office and place of business shall be at ....

....

Article IV. Membership.

This association shall be composed of dairymen or owners of dairy herds who agree to comply with the members' agreement, and who are acceptable to the board of directors.

Article V. Meetings.

This association shall meet annually for the election of a board of directors and for the transaction of other necessary business at such time and place as may be determined upon by the board of directors. All members shall be notified at least one week in advance of such meetings. Special meetings of the association may be called by the president or the board of directors; notices thereof to be given at least two days in advance to all the members of the Association. Meetings of the board

of directors shall be called by the secretary on the order of the president or three members of the board.

Article VI. Organization.

The governing body of this association shall consist of a board of directors of five active members, who shall elect from their own number, unless otherwise desirable, a president, vice-president, secretary-treasurer, whose duties shall be those usually devolving upon such officers. The first election of officers shall be held immediately after the election of the board of directors. All officers and directors shall hold office until their successors are elected. Vacancies occurring in the board of directors shall be filled by a majority vote of the remaining members of the board.

Article VII. Business.

Authority to conduct the business of the association shall be vested in the board of directors.

Article VIII. Election.

Election of all officers and directors shall be by majority vote.

Article IX. Amendments.

This constitution may be amended by a two-thirds vote of the active members of the association present at any annual meeting.

By-Laws.

Article I. Order of Business.

1. Reading of minutes of previous meetings.
2. Reports of secretary-treasurer.
3. Reports of committees.
4. Unfinished business.
5. New business.
6. Election of officers.

Article II. Quorum.

Three members of the board of directors shall constitute a quorum.

Article III. Amendments.

The by-laws may be amended by a two-thirds vote of the active members of the association present at any annual meeting.

STANDARD EQUIPMENT

All of the equipment is to be owned by the cow-testing association and should be made up as follows:

1. One 60-pound milk scale.
2. Babcock tester (recommend 24-bottle tester)
3. Standard glassware as adopted by the American Dairy Science Association
    a. 30 milk-test bottles
    b. 2 pipettes
    c. 1 skim-milk test bottle
4. Acid measure or dipper
5. A standard milk-sample graduate
6. 24 sample jars (4-ounce bottles)
7. Sample dipper
8. Water bath
9. Dairy thermometer
10. Dividers
11. Computing book.
    a. Smith's computer
    b. Creller's Rechnentafeln.
12. Extra milk pail.
13. Test bottle and sample bottle brushes.
14. Lock and key.
15. A locked field box.
16. Commercial sulphuric acid 1.82 sp. gr.

COWS ON TEST

All cows of milking age in the herd must be put on test.

LOCKED SAMPLE CASES

At all times keep all milk samples and glassware under lock and key.

METHOD OF SAMPLING

1. All weighing and sampling of milk must be done by the tester.
2. Thoroughly mix the milk by stirring or pouring into another pail.
3. The composite sample shall consist of proportionate amounts of each milking.

APPLYING THE BABCOCK TEST

The Babcock test shall be applied according to the rules of the American Dairy Science Association, which are as follows:

Milk Samples. Composite samples should be kept in clean jars sealed air-tight, containing a sufficient amount of preservative. Corrosive sublimate, potassium bichromate, and formaldehyde may be used as satisfactory preservatives.

Immediately before testing, the sample is thoroughly mixed until it is homogeneous. If lumps of cream, butter, or ice do not completely disappear, heat to 100° - 120° F., mix thoroughly, and pipette at once. Avoid incorporation of air bubbles while mixing the sample. Curdy and churned samples are not dependable.

Testing. Measure 18 grams of milk from properly mixed sample into standard milk-test bottle, by using 17.6 c.c. standard pipette; add 17.5 c.c. of standard commercial sulphuric acid; and shake until all curd has disappeared, and then continue the shaking for a few moments longer. Milk and acid before mixing should have a temperature of 50 degrees to 70 degrees F.

Whirl in Babcock centrifuge for five, two, and one minutes, respectively, filling the botton with hot soft water (temperature 140° F. or above) to the bottom of the neck after the first whirling and to near top graduation after the second whirling. The proper speed of the centrifuge is 800 revolutions for an 18-inch diameter wheel and 1000 revolutions per minute for a 12-inch diameter wheel.

Set the test bottles into water bath so that the entire fat column is surrounded and read after a temperature of 135° F. to 140° F. has been maintained for not less than 3 minutes. Read test by measuring fat column from bottom of lower meniscus to top of upper meniscus. Use dividers for reading.

COLOSTRUM MILK

When a cow freshens or goes dry, production is figured for the time the cow actually gave milk, except that when a cow freshens three days are deducted for colostrum. The milk should not be tested until the seventh day after calving. If this will be after the tester's visit, the next month's test will be used in determining the production of this fractional period.

RETEST

1. Cows producing above the rate of 2.5 pounds butterfat per day for the regular monthly testing period, when milked twice per day, are to be retested during the following 24 hours.

2. Cows producing above the rate of 3 pounds butterfat per day for the regular monthly testing period, when milked three or four times per day, are to be retested during the following 24 hours.

3. Retests are to be conducted by the local cow tester or tester designated by the State supervisor in charge of cow-testing associations. When a retest is made the average of the original test and the retest is to be used in figuring the final record.

4. The cost of the retest is to be paid for by the owner of the cow. The cost shall not be more than the prevailing rate schedule in use in the association.

5. If the owner does not consent to pay for a retest all publicity is to be withheld and the records of such cows are not to be included in the monthly and yearly herd and association summaries.

CALVES ON COWS

Where the cow is nursing the calf, feed cost should be charged. No milk samples are to be taken until subsequent testing day after the calf has been removed. Weights and tests obtained at that time should be used in figuring back production, excluding colostrum milk.

MILK SHEETS

The milk sheet is for the farmer's use and enables him to keep milk-production and his own feed records up to date at all times.

TESTERS USE THEIR OWN FIGURES

Testers shall take their production figures of the testing day as the average for the monthly testing period.

THE McDOWELL METHOD FOR CENTERING THE TESTING DAY

The testing period has the same number of days as the calendar month in which the testing day occurs. Considering the testing day as the middle of the testing period gives each herd a different testing period. If the testing day of a certain herd is on the first day of the month, the monthly testing period for that herd extends from the middle of the preceding month to the middle of the current month. If the testing day is in the middle of the calendar month, the monthly testing period and the calendar month coincide. If the testing day is the last day of the month, the monthly testing period extends from the middle of that month to the middle of the following month.

For instance, if the test is made on March 16, the testing period is the month of March, with 31 days. If the testing day is March 31, the testing period is 31 days -- from March 16 to April 15, inclusive. If the testing day is April 1, the period is 30 days -- from March 17 to April 15 inclusive. If the testing day is April 16, the period is the month of April, 30 days.

When a cow freshens or goes dry there will usually be a fractional month for which production must be figured. If a cow freshens on March 2 and the next testing day is April 1, three days are allowed for the milk to become normal, and the production is figured from March 5. In this case the fractional month extends from March 5 to March 16, inclusive, and in computing production for that period the milk weights and the test of April 1 are used. The remainder of the testing period, namely, from March 16 to April 15, is calculated as in previous paragraph. Feed weights, however, are figured for the entire monthly period that centers on April 1, and for this cow, as well as for all other cows in the herd, the feed weights for April 1 are used in making the computations. If the testing day is April 1 and a cow goes dry on April 30, the testing period that centers on April 1 extends from March 17 to April 15, inclusive, as stated in the preceding paragraph. This leaves a fractional testing period from April 16 to April 30, inclusive. For this period the milk weight and test of April 1 must be used, but the feed weights of May 1 are used to cover the entire monthly period that centers on May 1.

It is desirable that the testing year begin at or near the beginning of a calendar month, so that the tester can make a round of the association within each calendar month. The monthly testing period is given the name of the calendar month in which the testing day occurs.

Where the cow freshens at such a time during the last testing at the end of the association year that she can not be credited on the last regular visit of the tester, the books may be kept open until the first regular visit of the next year and completed at that time. In case the member does not continue in the association he may pay for the extra visit necessitated to complete this record, or the cow will be considered as dry and the books be closed.

LOST SAMPLES AND ABNORMAL TESTS

In case of lost samples or abnormally low or high test, due to abnormal conditions, use the average of preceding and following tests. In case of fresh cows where the sample is lost or test is abnormal, use the following month's test.

DOUBLING HERDS

Doubling herds is discouraged. In the event of doubling of herds it must be passed on by the State supervisor in charge of cow-testing associations. At all times the samples must be taken by the tester.

MONTHLY HERD AVERAGES

In calculating the monthly herd average for the monthly herd summary the total number of cows in the herd, including the dry cows and heifers just freshened, must be included.

YEARLY HERD AVERAGES

The cow-year method is to be used in figuring the yearly herd average. This method is as follows:

Month	Cows in milk	Cows dry	Cows in herd	Remarks
January	12	2	14	
February	14	0	14	
March	13	0	13	
April	15	1	16	
May	15	1	16	Sold one cow.
June	16	0	16	
July	16	0	16	
August	12	4	16	
September	11	5	16	Purchased three cows.
October	14	2	16	
November	16	0	16	
December	16	0	16	
			185 cow months	

The average number of cows in the herd for the year is 185 ÷ 12 = 15.41. The monthly herd-summary sheet in the herd book, when properly kept, will give all information needed to use this method of figuring the herd average. When the total milk and fat for each month, as shown in the summary page, is taken for the grand total, there will be included in the total all the butterfat and milk that there should be, no more and no less. When the number representing the average number of cows ends in a fraction it should be carried out to two decimal places.

The herd average for milk, butterfat, and other items can be determined by dividing the totals for the year by the average number of cows in the herd, according to the above method.

YEARLY C. T. A. AVERAGE

The yearly cow-testing association average is to be derived as follows: Total all milk and butterfat produced by all herds in the

association, and divide this total by the total number of cow-years.

PRICES OF FEED

All feed, including silage, hay, grain, and any other feeds, should be figured on the valuation of these on the farm. The price of silage is the value of silage in the silo; hay, is the value of hay in the mow; grain, is the value of grain in the barn. Feed purchased should be figured on the prevailing market prices when fed.

VALUE OF PRODUCT

The value of the product shall be based on a F. O. B. farm price.

SKIM MILK

Skim milk shall be credited to the cow, where milk is separated. The value of the skim milk is to be determined in each state by local conditions. 85 per cent of the whole milk produced by the cow is to be considered skim milk. The valuation of skim milk is to be included in the column "Value of Product" in the C. T. A. herd book.

CLASSIFICATION OF HERDS

For monthly and yearly herd averages, classify the herds according to the following sizes:

Small herds - Below 6 cows
Medium herds - 6 to 15 cows
Large herds - Above 15 cows

UNPROFITABLE COWS

No cow shall be sold for dairy purposes if her C. T. A. record has pointed her out as an unprofitable cow.

IDENTIFICATION OF COWS

We recommend that the cow outlines be again inserted in the cow-testing association herd book as an aid in identifying cows. Wherever possible ear-tags or other means of identification should be used.

RECOMMENDATIONS TO THE BUREAU OF DAIRYING, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

We recommend that the heading entitled "No. cows tested" be changed to "Total cows in herd" on monthly herd-summary sheet and in the herd book.

We recommend that the cow outlines be again inserted in the cow-testing association herd book as an aid in identifying cows. Wherever possible ear-tags or other means of identification should be used.

We recommend that milk sheets should be distributed only to cow-testing association members.

We recommend that the cow-testing association forms be given out only to members of regularly organized cow-testing associations. We further recommend that if found feasible a new distinctive type of form be prepared for use in other than regularly organized cow-testing associations.

We recommend that the present title of "Record of the Dairy Herd" as it appears on the outside cover of the herd book be changed to "Cow Testing Association Herd Book."

We recommend that the inside back cover page of the Cow Testing Association Herd Book be printed as follows:

Month	Rations used									Rations suggested							
January																	

We recommend that in the Cow Testing Association Herd Book on the Monthly Herd Summary page the horizontal rulings be increased from 21 to 23, with 11 indicated totals to date printed on the left side of the page; also two extra perpendicular lines to be added for items "Herd average in milk and butterfat production."

We recommend that the names and addresses of both testers and secretaries be dropped from the Cow Testing Association Directory published by the United States Bureau of Dairying.

We recommend the addition of per cent of cows in the cow-testing association work in each State and for the United States, and also the addition of any other desirable data.

We recommend that the Bureau of Dairying secure further information and data in regard to the short-cut methods of testing and report to the fall meeting of the cow-testing association committee.

We recommend that a monthly news letter be published by the Bureau of Dairying to be sent to the State supervisor in charge of cow-testing associations, to the heads of dairy departments, deans of agriculture, and directors of extension of State agricultural colleges.

We recommend that Mr. J. B. Parker, in his work representing the Bureau of Dairying, keep in close contact with all States in correlating cow-testing association methods.

We recommend that if any cow tester from one State applies in another State for cow-testing association work the supervisor in the latter State shall correspond with the supervisor in the former State to verify the qualifications of said tester.

MEMBERSHIP AGREEMENT FOR COW TESTING ASSOCIATION

I hereby apply for membership in the ________________ Cow Testing Association for the purpose of cooperating with the members of this organization in the improvement of the dairy industry and the testing of my entire herd of cows for economical production of butterfat for one year beginning __________, 19 __ ; this application and the accompanying notes to be void and of no effect unless a sufficient number of applications are received to warrant the association in employing a person to test the cows and keep the usual records.

For the services of the tester for one day each month for the testing of my herd of not over 30 cows, for necessary supplies and equipment, the latter to include the supervision and record books secured through this association, I agree to pay a total sum of $_________ for the year. Should my herd exceed 30 cows in milk and require more than 12 days of the tester's services, I agree to pay $ ________ for each additional day required.

To guarantee the payment of my full obligation as above set forth, I further agree to give two (2) promissory bankable notes totaling $________ and payable to the order of the secretary of this cow-testing association semiannually in advance, without interest until after due.

I further agree to furnish board and lodging for the man employed as tester for at least one day each month, and also on Sundays and holidays when they occur at the time which regularly brings him to my place. I also agree to convey him to his next place of work when roads are impassable for a car; or, should he use a horse conveyance, I will feed his horse while his work keeps him at my place. If the board of directors arrange to pay for transportation of the cow tester, then I agree to permit the association secretary to allow such payment from the above assessment.

I agree to be subject to the by-laws of this association. I agree and promise, in case of my resignation or withdrawal from this association, to furnish a substitute who is satisfactory to the board of directors, or to pay for the entire year's testing.

I agree that if I withdraw from the association before the end of the year, without cause acceptable to the board of directors, I will surrender my cow-testing association herd book on the demand of the board of directors or to the State supervisor.

(Signed)____________________________

Date ______________19___ Post office address ________________________

$\$$_____ _______________________, __________________ 19 ______.

On or before ____________ 19____, I promise to pay to the order of the Secretary of the_______________________________ Cow Testing Association______________________________________ DOLLARS value received, payable at the _____________ Bank _____________, with interest at _______ per cent after _______________, 19____.

______________________________________.

MEMBER'S AGREEMENT FOR COW TESTING ASSOCIATION

I hereby make application for membership in the ____________ ________________________ Cow Testing Association and express my desire to receive the services and privileges of said association. In consideration of my admission to membership and of having my entire herd of cows tested once every month for one year by an employee of said association and the yearly production and feed records of each cow completed to the satisfaction of the board of directors, I agree to pay to the secretary of said association yearly in quarterly payments by postdated checks my prorated share of the sum necessary to pay salary of tester and operating expenses, my prorated share to be

(on size of herd
determined by schedule of prices based (and adopted
(on flat rate

by board of directors. I agree to pay a membership fee of __________ dollars ($____), this amount to be added to my first quarterly payment. The accompanying postdated checks to be void unless a sufficient number of applications are received to warrant the association to organize.

The following schedule of prices to determine the cost unless conditions make its modification necessary by board of directors.

(1) Flat rate $.......... per month.

(2)

Number of cows	Amount per month	Number of cows	Amount per month	Number of cows	Amount per month
____ inclusive	$.....	____inclusive	$.....	____inclusive	$.....
____ "	$.....	____ "	$.....	____ "	$.....
____ "	$.....	____ "	$.....	____ "	$.....
____ "	$.....	____ "	$.....	____ "	$.....
____ "	$.....	____ "	$.....	____ "	$.....

Maximum number of cows to be tested in one day, thirty.

I agree that if any cow in the test dies or is sold before any year is ended there shall be no reduction in the amount due said association, but another cow may be substituted in the place of the cow that dies or was sold.

I further agree to furnish board and lodging for the man employed by said association for at least one day of each month, and over Sunday

and holidays, if his regular course brings him to my house on Saturday or the day before a holiday; and to convey him to his next place of work, or to stable and feed his horse while he is staying at my farm, or allow the payment of mileage for auto by the association secretary.

I agree to be subject to the by-laws of this association. I agree and promise, in case of my resignation or withdrawal from this association, to furnish a substitute who is satisfactory to the board of directors, or to pay for the entire year's testing.

I agree that if I withdraw from the Association before the end of the year, without cause acceptable to the Board of directors, I will surrender my herd book on the demand of the board of directors or to the State supervisor.

____________________ Michigan, ____________ 19____

____
(Name of bank thru which payment is to be made)

Pay to the order of Secretary of ____________________

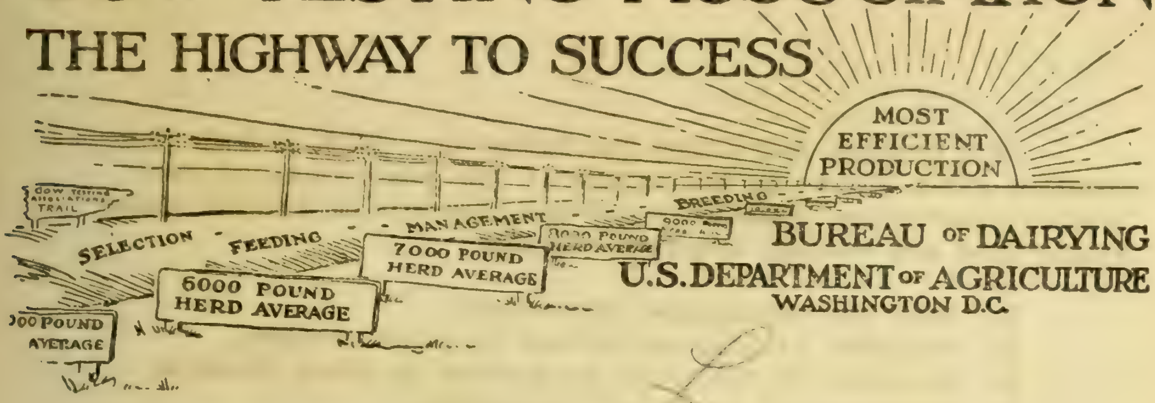
____________________ Cow Testing Association $______

____________________________________ Dollars

for three months' services of Tester of above Association.

____

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Cow-Testing Association Letter No. 5. October, 1925.

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The Work of the Tabulating Machinery.

In the preceding issue of this cow-testing association letter a description was given of the tabulating machinery recently installed in the Bureau of Dairying. In order that a comprehensive idea may be had of the service these machines will enable the Bureau to render the States in cow-testing association work, three tabulations with explanations are given as examples.

The first tabulation, Table 1, is a yearly herd and association summary. In order to conserve space a small association was chosen. The herd totals and association totals are exactly as they came from the machine. The herd averages and association averages were obtained on electric computing machines and inserted in the table in the proper spaces.

Table 2 shows the records of all the cows on test 12 months in eleven small associations. The records were sorted into various groups on the basis of milk production, the group centers being 1,000 pounds apart. This tabulation shows the relation between production of milk and other factors, including income over feed cost.

Table 3 was made from the same records as Table 2, with the exception that the records were sorted on the basis of butterfat production instead of milk production. The group centers are 50 pounds apart. The group ranges are 75-124; 125-174; 175-224; 225-274; etc. This tabulation shows the relation between butterfat production and other factors, including income above feed cost.

With present facilities the following, which include the examples given above, is the extent of the tabulations of cow-testing association records we are now prepared to furnish those States that are sending complete records:

1. Herd and association summaries.
2. Relation of milk production to other factors.
3. Relation of butterfat production to other factors.
4. Influence of season of freshening.
5. Comparison of purebreds and grades.

If the record strips are filled out in such a way as to give the breed, name, and number of each sire and to clearly indicate each daughter and her dam, valuable compilations can be made showing the true value of the bulls. Testing the bull through the records of his daughters should be one of the first considerations in cow-testing association work. Special attention will be given to such tabulations when sufficient material is received.

There is a limit to the work that can be done even with the new equipment. It will probably never be practicable for us to furnish information as to the actual production of Luke McLuke's brindle cow for the year 1924, and it may never be practicable to decide as to which cow led all the cow-testing association cows in the United States in production of milk and butterfat over any given period of time. The Bureau will not attempt more than can be done well, and for this reason the tabulations must be limited to those indicated above.

Table 1.-Herd and Association Summary Sheet. (Cow Testing Association Letter No. 5.)

HERD NUMBER	NUMBER OF COWS	BREED	POUNDS OF MILK	AVG. B'FAT TEST	POUNDS OF FAT	VALUE OF PRODUCT	COST OF ROUGHAGE	COST OF GRAIN	TOTAL COST OF FEED	VALUE OF PRODUCT ABOVE FEED COST
1	12		72419		3734	$ 1491	$204	$277		
			6035	5.2	311	124.25	17.00	23.08	$40.08	$84.17
2	11		58570		2903	1058	220	146		
			5325	5.0	264	96.18	20.00	13.27	33.27	62.91
3	3		19351		777	281	69	131		
			6450	4.0	259	93.67	23.00	43.67	66.67	27.00
4	43		255641		13054	13800	1245	2291		
			5945	5.1	304	320.93	28.95	53.28	82.23	238.70
5	18		108653		4310	4670	450	867		
			6036	4.0	239	259.44	25.00	48.17	73.17	186.27
6	6		33957		1680	680	210	195		
			5660	4.9	280	113.33	35.00	32.50	67.50	45.83
7	18		90377		3985	1476	451	376		
			5021	4.4	221	81.50	25.06	20.89	45.95	35.55
8	9		62463		2262	2042	243	438		
			6940	3.6	251	226.89	27.00	48.67	75.67	151.22
9	9		70555		2649	931	180	206		
			7839	3.8	294	103.44	20.00	22.89	42.89	60.55
10	17		108441		5009	2077	731	589		
			6379	4.6	295	122.18	43.00	34.65	77.65	44.53
	146		880427	4.6	40363	$28506	$ 4003	$5516		
			6030		276	195.25	27.42	37.78	$ 65.20	$130.05

For each herd the totals are given on one line; and on the line below are given the averages.

Table 2.- Relation of milk production to other factors. (Cow Testing Association Letter No. 5.)

NUMBER OF COWS	POUNDS OF MILK	AVG. BUTTER-FAT TEST	POUNDS OF FAT	PRICE OF PRODUCT	VALUE OF PRODUCT	COST OF ROUGHAGE	COST OF GRAIN	TOTAL COST OF FEED	VALUE OF PRODUCT ABOVE FEED COST
2	1973		83		$ 73	$ 47	$ 14		
	986	4.2	42		36.50	23.50	7.00	$30.50	$6.00
18	38039		1720		855	446	157		
	2113	4.5	96		47.50	24.78	8.72	33.50	14.00
57	175249		8023		4869	1503	909		
	3075	4.6	141		85.42	26.37	15.95	42.32	43.10
102	408637		18912		11055	2646	1720		
	4006	4.6	185		108.38	25.94	16.86	42.80	65.58
143	722204		32250		19089	4101	3068		
	5050	4.5	226		133.49	28.68	21.45	50.13	83.36
178	1069482		45457		28132	5301	4019		
	6008	4.3	255		158.04	29.78	22.58	52.36	105.68
134	936628		38922		25710	4165	4087		
	6990	4.2	290		191.87	31.08	30.50	61.58	130.29
107	854388		32804		20543	3339	3619		
	7985	3.8	307		191.99	31.21	33.82	65.03	126.96
63	559106		20625		12838	2047	2167		
	8875	3.7	327		203.78	32.49	34.40	66.89	136.89
15	148339		5175		3025	514	654		
	9889	3.5	345		201.67	34.27	43.60	77.87	123.80
19	206909		6622		3952	738	907		
	10890	3.2	349		208.00	38.84	47.74	86.58	121.42
13	155799		5807		4123	522	739		
	11985	3.7	447		317.15	40.15	56.85	97.00	220.15
3	38023		1309		714	144	253		
	12674	3.4	436		238.00	48.00	84.33	132.33	105.67
2	28236		936		655	113	186		
	14118	3.3	468		327.50	56.50	93.00	149.50	178.00
3	48555		1709		1351	166	273		
	16185	3.5	570		450.33	55.33	91.00	146.33	304.00
859	5391567		220354		$ 136984	$25792	$22772		
	62[illegible]7	4.1	257		159.47	30.03	26.51	$56.54	$ 102.93

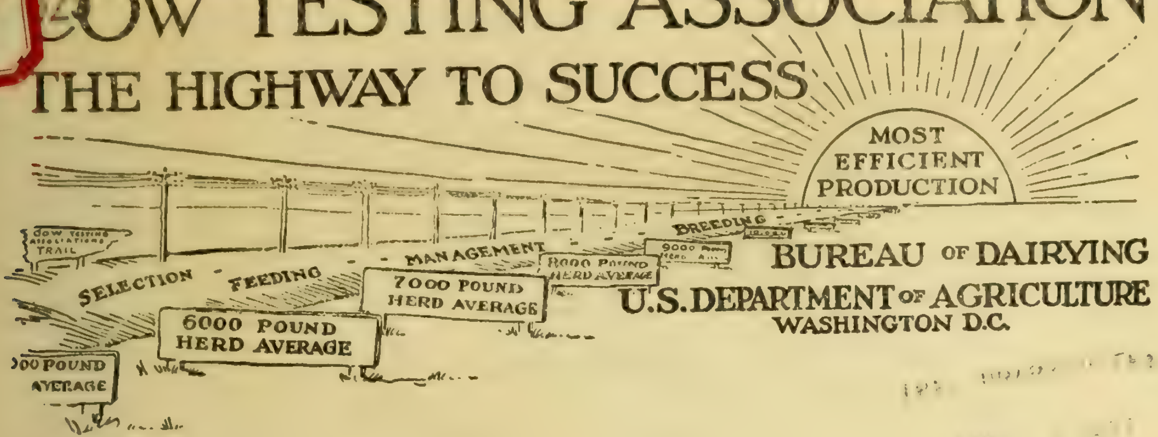
For each group the totals are given on one line; and on the line below are given the averages.

Table 3.-- Relation of butterfat Production to other factors. (Cow Testing Association Letter No.5.)

NUMBER OF COWS	POUNDS OF MILK	AVG. BUTTERFAT TEST	POUNDS OF FAT	PRICE OF PRODUCT	VALUE OF PRODUCT	COST OF ROUGHAGE	COST OF GRAIN	TOTAL COST OF FEED	VALUE OF PRODUCT ABOVE FEED COST
1	607		24		$ 14	$ 29	$ 14		
	607	4.0	24		14.00	29.00	14.00	$ 43.00	$ 29 loss
5	8742		321		226	118	20		
	1748	3.7	64		45.20	23.60	4.00	27.60	17.60
35	91955		3682		1868	885	312		
	2627	4.0	105		53.37	25.29	8.91	34.20	19.17
86	336356		13101		7374	2264	1071		
	3911	3.9	152		84.74	26.33	12.45	38.78	45.96
184	931736		37060		22346	5410	3441		
	5064	4.0	201		121.45	29.40	18.70	48.10	73.35
197	1251008		48835		30866	5929	5191		
	6350	3.9	248		156.68	30.10	26.35	56.45	100.23
192	1375814		57024		34415	5858	6068		
	7165	4.1	297		179.24	30.51	31.60	62.11	117.13
100	833374		34706		22082	3196	3887		
	8334	4.2	347		220.82	31.96	38.87	70.83	149.99
33	278303		13082		8770	1108	1274		
	8433	4.7	396		265.76	33.58	38.61	72.19	193.57
16	161942		7107		5344	573	902		
	10121	4.4	444		334.00	35.81	56.38	92.19	241.81
5	51702		2408		1222	183	232		
	10340	4.7	482		244.40	36.60	46.40	83.00	161.40
2	32321		1109		1042	103	158		
	16160	3.4	554		521.00	51.50	79.00	130.50	390.50
3	37657		1895		1415	136	202		
	12552	5.0	632		471.67	45.33	67.33	112.66	359.01
859	5391567		220354		$136984	$ 25792	$ 22772		
	6277	4.1	257		159.47	30.03	26.51	$56.54	$102.93

For each group of cows the totals are given on one line; and on the line below are given the averages.

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

NOV
UNIVERSITY OF ILLINOIS

Cow Testing Association Letter No.6. November, 1925.

Standard Rules for Cow Testing Association Operation Adopted by the American Dairy Science Association

In the May issue of the cow-testing association news letter tentative rules suggested by the cow-testing association committee of the American Dairy Science Association at its meeting in Chicago in February, last, were given. These rules received further consideration by the committee during the recent dairy show in Indianapolis, and were recommended to the Extension Section of the American Dairy Science Association. After receiving the most thoughtful consideration, including suggestions from State specialists interested in the cow-testing association work, they were adopted unanimously. From this section the rules were presented to the general session of the American Dairy Science Association, where they were also adopted, It is expected that they will become the standard rules for cow-testing association operation in this country.

Uniform methods of operation have been badly needed and their use will greatly expedite the compilation of fundamental data from associations throughout the country, and make records in different States comparable. The adoption of these new rules by every cow-testing association in the United States will be a great advantage to all cow testing.

CONSTITUTION AND BY-LAWS
FOR COOPERATIVE COW TESTING ASSOCIATION

CONSTITUTION

Article 1. Name.

The name of this association shall be ....

....Cow Testing Association.
(Suggest county or nearest town name)

Article 11. Object.

The object of this association shall be to provide means and methods for improving the dairy herds of members. This will be accomplished through the keeping of production, feed, and income records of each cow, on the basis of which unprofitable cows may be eliminated and feeding done more economically.

Article 111. Place of Business.

Its principal office and place of business shall be at ....

....

Article IV. Membership.

This association shall be composed of dairymen or owners of dairy herds who agree to comply with the members' agreement, and who are acceptable to the board of directors.

Article V. Meetings.

This association shall meet annually for the election of a board of directors and for the transaction of other necessary business at such time and place as may be determined upon by the board of directors. All members shall be notified at least one week in advance of such meetings. Special meetings of the association may be called by the president or the board of directors; notices thereof to be given at least two days in advance to all the members of the association. Meetings of the board of directors shall be called by the secretary on the order of the president or three members of the board.

Article VI. Organization.

The governing body of this association shall consist of a board of directors of five active members, who shall elect from their own number, unless otherwise desirable, a president, vice-president, secretary-treasurer, whose duties shall be those usually devolving upon such officers. The first election of officers shall be held immediately after the election of the board of directors. All officers and directors shall hold office until their successors are elected. Vacancies occurring in the board of directors shall be filled by a majority vote of the remaining members of the board.

Article VII. Business.

Authority to conduct the business of the association shall be vested in the board of directors. Among the duties of the board shall be the hiring of the tester by a written agreement.

Article VIII. Election.

Election of all officers and directors shall be by majority vote.

Article IX. Amendments.

This constitution may be amended by a two-thirds vote of the active members of the association present at any annual meeting.

BY - LAWS.

Article 1. Order of business.

1. Reading of minutes of previous meetings.
2. Reports of secretary-treasurer.
3. Reports of committees.
4. Unfinished business.
5. New business.
6. Election of officers.

Article 11. Quorum.

Three members of the board of directors shall constitute a quorum.

Article 111. Amendments.

The by-laws may be amended by a two-thirds vote of the active members of the association present at any annual meeting.

STANDARD EQUIPMENT

All of the equipment is to be owned by the cow-testing association and should be made up as follows:

1. One 60-pound milk scale.
2. Babcock tester (recommend 24-bottle tester)
3. Standard glassware as adopted by the American Dairy Science Association
    a. 30 milk-test bottles
    b. 2 pipettes
    c. 1 skim-milk test bottle
4. Acid measure or dipper
5. A standard milk-sample graduate
6. 24 Sample jars (4-ounce bottles)
7. Sample dipper
8. Water bath
9. Dairy thermometer
10. Dividers
11. Computing book.
    a. Smith's computer or Creller's Rechnentafeln.
12. Extra milk pail.
13. Test bottle and sample bottle brushes.
14. Lock and key.
15. A locked field box.
16. Commercial sulphuric acid 1.82 sp. gr.

COWS ON TEST

All cows of milking age in the herd must be put on test. If not all monthly and yearly publicity is to be withheld.

LOCKED SAMPLE CASES

At all times keep all milk samples and glassware under lock and key to prevent outside criticism and assure reliable records.

METHOD OF SAMPLING

1. All weighing and sampling of milk must be done by the tester.
2. Thoroughly mix the milk by pouring and stirring into another pail.
3. The composite sample shall consist of proportionate amounts of each milking.

APPLYING THE BABCOCK TEST

The Babcock test shall be applied according to the rules of the American Dairy Science Association, which are as follows:

Milk Samples. Composite samples should be kept in clean jars sealed air-tight, containing a sufficient amount of preservative. Corrosive sublimate, potassium bichromate, and formaldehyde may be used as satisfactory preservatives.

Immediately before testing, the sample is thoroughly mixed until it is homogeneous. If lumps of cream, butter, or ice do not completely disappear, heat to 100° - 120° F., mix thoroughly, and pipette at once. Avoid incorporation of air bubbles while mixing the sample. Curdy and churned samples are not dependable.

Testing. Measure 18 grams of milk from properly mixed sample into standard milk-test bottle, by using 17.6 c.c. standard pipette; add 17.5 c.c. of standard commercial sulphuric acid; and shake until all curd has disappeared, and then continue the shaking for a few moments longer. Milk and acid before mixing should have a temperature of 50 degrees to 70 degrees F.

Whirl in Babcock centrifuge for five, two, and one minutes, respectively, filling the bottle with hot soft water, (temperature 140° F. or above) to the bottom of the neck after the first whirling and to near top graduation after the second whirling. The proper speed of the centrifuge is 800 revolutions for an 18-inch diameter wheel and 1000 revolutions per minute for a 12-inch diameter wheel.

Set the test bottles into water bath so that the entire fat column is surrounded and read after a temperature of 135° F. to 140° F. has been maintained for not less than 3 minutes. Read test by measuring fat column from bottom of lower meniscus to top of upper meniscus. Use dividers for reading.

COLOSTRUM MILK

When a cow freshens or goes dry, production is figured for the time the cow actually gave milk, except that when a cow freshens three days are deducted for colostrum including freshening day. The milk should not be tested until the seventh day after calving. If this will be after the tester's visit, the next month's test will be used in determining the production of this fractional period.

RETEST

1. Cows producing at the rate of 2.5 pounds butterfat or more per day for the regular monthly testing period, when milked twice per day, are to be retested during the following 24 hours.

2. Cows producing at the rate of 3 pounds butterfat or more per day for the regular monthly testing period, when milked three or four times per day, are to be retested during the following 24 hours.

3. When a herd averages 50 pounds or more butterfat on cows in milk then a retest is to be conducted during the following 24 hours.

4. Retests are to be conducted by the local cow tester or tester designated by the State supervisor in charge of cow testing associations. When a retest is made the average of the original test and the retest is to be used in figuring the final record.

5. The cost of the retest is to be paid for by the owner of the cow. The cost shall not be more than the prevailing rate schedule in use in the association.

6. If the owner does not consent to pay for a retest all publicity is to be withheld and the records of such cows are not to be included in the monthly and yearly herd and association summaries.

CALVES ON COWS

Where the cow is nursing the calf, feed cost should be charged. No milk samples are to be taken until subsequent testing day after the calf has been removed. Weights and tests obtained at that time should be used in figuring back production, excluding colostrum milk.

MILK SHEETS

The milk sheet is for the farmer's use and enables him to keep milk-production and his own feed records up to date at all times.

TESTERS USE THEIR OWN FIGURES

Testers shall take their production figures of the testing day as the average for the monthly testing period.

THE MCDOWELL METHOD FOR CENTERING THE TESTING DAY

The testing period has the same number of days as the calendar month in which the testing day occurs. Considering the testing day as the middle of the testing period gives each herd a different testing period. If the testing day of a certain herd is on the first day of the month, the monthly testing period for that herd extends from the middle of the preceding month to the middle of the current month. If the testing day is in the middle of the calendar month, the monthly testing period and the calendar month coincide. If the testing day is the last day of the month, the monthly testing period extends from the middle of that month to the middle of the following month.

For instance, if the test is made on March 16, the testing period is the month of March, with 31 days. If the testing day is March 31, the testing period is 31 days -- from March 16 to April 15, inclusive. If the testing day is April 1, the period is 30 days -- from March 17 to April 15, inclusive. If the testing day is April 16, the period is the month of April, 30 days.

When a cow freshens or goes dry there will usually be a fractional month for which production must be figured. If a cow freshens on March 2 and the next testing day is April 1, three days are allowed for the milk to become normal, and the production is figured from March 5. In this case the fractional month extends from March 5 to March 16, inclusive, and in computing production for that period the milk weights and the test of April 1 are used. The remainder of the testing period namely, from March 16 to April 15, is calculated as in previous paragraph. Feed weights, however, are figured for the entire monthly period that centers on April 1, and for this cow, as well as for all other cows in the herd, the feed weights for April 1 are used in making the computations. If the testing day is April 1 and a cow goes dry on April 30, the testing period that centers on April 1 extends from March 17 to April 15, inclusive, as stated in the preceding paragraph. This leaves a fractional testing period from April 16 to April 30, inclusive. For this period the milk weight and test of April 1 must be used, but the feed weights of May 1 are used to cover the entire monthly period that centers on May 1.

It is desirable that the testing year begin at or near the beginning of a calendar month, so that the tester can make a round of the association within each calendar month. The monthly testing period is given the name of the calendar month in which the testing day occurs.

Where the cow freshens at such a time during the last testing month at the end of the association year that she can not be credited on the last regular visit of the tester, the books may be kept open until the first regular visit of the next year and completed at that time. In case the member does not continue in the association he may pay for the extra visit necessitated to complete this record, or the cow will be considered as dry and the books be closed.

LOST SAMPLES AND ABNORMAL TESTS

In case of lost samples or abnormally low or high test, due to abnormal conditions, use the average of preceding and following tests. In case of fresh cows where the sample is lost or test is abnormal, use the following month's test.

DOUBLING HERDS

Doubling herds is discouraged. In the event of doubling of herds it must be passed on by the State supervisor in charge of cow testing associations. At all times the samples must be taken by the tester.

MONTHLY HERD AVERAGES

In calculating the monthly herd average for the monthly herd summary the total number of cows in the herd, including the dry cows and heifers just freshened, must be included.

YEARLY HERD AVERAGES

The cow-year method is to be used in figuring the yearly herd average. This method is as follows:

Month	Cows in Milk	Cows dry	Cows in Herd	Remarks
January	12	2	14	
February	14	0	14	
March	13	0	13	
April	15	1	16	
May	15	1	16	Sold one cow.
June	16	0	16	
July	16	0	16	
August	12	4	16	Purchased
September	11	5	16	three cows.
October	14	2	16	
November	16	0	16	
December	16	0	16	
			185 cow months	

The average number of cows in the herd for the year is 185 ÷ 12 = 15.41. The monthly herd summary sheet in the herd book, when properly kept, will give all information needed to use this method of figuring the herd average. When the total milk and fat for each month, as shown in the summary page, is taken for the grand total, there will be included in the total all the butterfat and milk that there should be, no more and no less. When the number representing the average number of cows ends in a fraction it should be carried out to two decimal places.

The herd average for milk, butterfat, and other items can be determined by dividing the totals for the year by the average number of cows in the herd, according to the above method. Cows sold for slaughter before the last month of the association year are not to be included in the yearly herd average.

YEARLY C.T.A. AVERAGE

The yearly cow-testing association average is to be derived as follows: Total all milk and butterfat produced by all herds in the association, and divide this total by the total number of cow years.

PRICES OF FEED

All home grown feed, including silage, hay and grain should be figured on the valuation of these on the farm when fed. The price of silage is the value of silage in the silo; hay, is the value of the hay in the mow; grain, is the value of grain in the barn. Purchased feed should be figured on the basis of prices paid.

VALUE OF PRODUCT

The value of the product shall be based on a F.O.B. farm price.

SKIM MILK

Skim milk shall be credited to the cow where milk is separated. The value of the skim milk is to be determined in each State by local conditions. Eighty-five per cent of the whole milk produced by the cow is to be considered skim milk. The valuation of skim milk is to be included in the column "Value of Product" in the C.T.A. herd book.

CLASSIFICATION OF HERDS

For monthly and yearly herd averages, classify the herds according to the following sizes:

Small herds -- Below 5 cows
Medium herds - 5 to 15 cows
Large herds -- Above 15 cows

UNPROFITABLE COWS

No cow shall be sold for dairy purposes if her C.T.A. record has pointed her out as an unprofitable cow.

RECOMMENDATIONS TO THE BUREAU OF DAIRYING
DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

IDENTIFICATION OF COWS

We recommend that the cow outlines be again inserted in the cow-testing association herd book as an aid in identifying cows. Wherever possible ear-tags or other means of identification should be used.

We recommend that the heading entitled "No. cows tested" be changed to "Total cows in herd" on monthly herd-summary sheet and in the herd book.

We recommend that milk sheets should be distributed only to cow-testing association members.

We recommend that the cow-testing association forms be given out only to members of regularly organized cow-testing associations. We further recommend that if found feasible a new distinctive type of form be prepared for use in other than regularly organized cow testing associations.

We recommend that the present title of "Record of the Dairy Herd" as it appears on the outside cover of the herd book be changed to "Cow Testing Association Herd Book."

We recommend that the inside back cover page of the Cow Testing Association Herd Book be printed as follows:

Month	Rations used									Rations Suggested								
January																		

We recommend that in the Cow Testing Association Herd Book on the monthly Herd Summary page the horizontal rulings be increased from 21 to 23, with 11 indicated totals to date printed on the left side of the page; also two extra perpendicular lines to be added for items "Herd average in milk and butterfat production."

We recommend that the names and addresses of both testers and secretaries be dropped from the Cow Testing Association Directory published by the United States Bureau of Dairying.

We recommend the addition of per cent of cows in the cow-testing association work in each State and for the United States, and also the addition of any other desirable data.

We recommend that the Bureau of Dairying secure further information and data in regard to the short-cut methods of testing and report to the fall meeting of the cow-testing association committee.

We recommend that a monthly news letter be published by the Bureau of Dairying to be sent to the State supervisor in charge of cow-testing associations, to the heads of dairy departments, deans of agriculture, and directors of extension of State agricultural colleges.

We recommend that Mr. J. B. Parker, in his work representing the Bureau of Dairying, keep in close contact with all States in correlating cow-testing association methods.

We recommend that if any cow tester from one State applies in another State for cow-testing association work the supervisor in the latter State shall correspond with the supervisor in the former State to verify the qualifications of said tester.

MEMBERSHIP AGREEMENT FOR COW TESTING ASSOCIATION

I hereby apply for membership in the____________________Cow Testing Association for the purpose of cooperating with the members of this organization in the improvement of the dairy industry and the testing of my entire herd of cows for economical production of butterfat for one year beginning __________, 19___; this application and the accompanying notes to be void and of no effect unless a sufficient number of applications are received to warrant the association in employing a person to test the cows and keep the usual records.

For the services of the tester for one day each month for the testing of my herd of not over 30 cows, for necessary supplies and equipment, the latter to include the supervision and record books secured through this association, I agree to pay a total sum of $ __________for the year. Should my herd exceed 30 cows in milk and require more than 12 days of the tester's services, I agree to pay $_________ for each additional day required.

To guarantee the payment of my full obligation as above set forth, I further agree to give two (2) promissory bankable notes totaling $______ and payable to the order of the secretary of this cow-testing association semiannually in advance, without interest until after due.

I further agree to furnish board and lodging for the man employed as tester for at least one day each month, and also on Sundays and holidays when they occur at the time which regularly brings him to my place. I also agree to convey him to his next place of work when roads are impassable for a car; or, should he use a horse conveyance, I will feed his horse while his work keeps him at my place. If the board of directors arrange to pay for transportation of the cow tester, then I agree to permit the association secretary to allow such payment from the above assessment.

I agree to be subject to the by-laws of this association. I agree and promise, in case of my resignation or withdrawal from this association, to furnish a substitute who is satisfactory to the board of directors, or to pay for the entire year's testing.

I agree that if I withdraw from the association before the end of the year, without cause acceptable to the board of directors, I will surrender my cow-testing association herd book on the demand of the board of directors or to the State supervisor.

(Signed)________________________

Date____________19__________Post office address____________

$____ __________________, ______________19 _________.

On or before__________19__________, I promise to pay to the

Order of the Secretary of the__________________________Cow

Testing Association______________________________Dollars

value received, payable at the_________Bank__________________,

with interest at_______per cent after __________, 19_______.

____

MEMBER'S AGREEMENT FOR COW TESTING ASSOCIATION

I hereby make application for membership in the ____________ ____________ Cow Testing Association and express my desire to receive the services and privileges of said association. In consideration of my admission to membership and of having my entire herd of cows tested once every month for one year by an employee of said association and the yearly production and feed records of each cow completed to the satisfaction of the board of directors, I agree to pay to the secretary of said association yearly in quarterly payments by postdated checks my prorated share of the sum necessary to pay salary of tester and operating expenses, my prorated share to be determined by schedule of prices based (on size of herd / (on flat rate and adopted by board of directors. I agree to pay a membership fee of __________ dollars ($______), this amount to be added to my first quarterly payment. The accompanying postdated checks to be void unless a sufficient number of applications are received to warrant the association to organize.

The following schedule of prices to determine the cost unless conditions make its modification necessary by board of directors.

(1) Flat rate $......... per month.

(2) Number of cows	Amount per month	Number of cows	Amount per month	Number of cows	Amount per month
______inclusive	$....	_____inclusive	$....	_____inclusive	$ ....
______ "	$....	_____ "	$....	_____ "	$ ....
______ "	$....	_____ "	$....	_____ "	$ ....
______ "	$....	_____ "	$....	_____ "	$ ....
______ "	$....	_____ "	$....	_____ "	$ ....

Maximum number of cows to be tested in one day, thirty.

I agree that if any cow in the test dies or is sold before any year is ended there shall be no reduction in the amount due said association, but another cow may be substituted in the place of the cow that dies or was sold.

I further agree to furnish board and lodging for the man employed by said association for at least one day of each month, and over Sundays and holidays, if his regular course brings him to my house on Saturday or the day before a holiday; and to convey him to his next place of work, or to stable and feed his horse while he is staying at my farm, or allow the payment of mileage for auto by the association secretary.

I agree to be subject to the by-laws of this association. I agree and promise, in case of my resignation or withdrawal from this association, to furnish a substitute who is satisfactory to the board of directors, or to pay for the entire year's testing.

I agree that if I withdraw from the Association before the end of the year, without cause acceptable to the Board of directors, I will surrender my herd book on the demand of the board of directors or to the State supervisor.

____________________ Michigan, ________________ 19________

____

(Name of bank thru which payment is to be made)

Pay to the order of Secretary of ______________________________

______________________________ Cow Testing Association $________

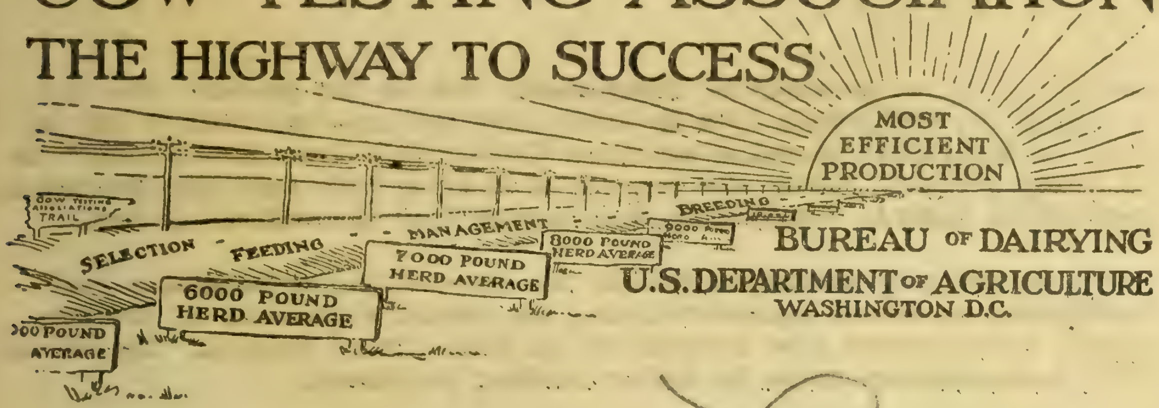
____ Dollars

for three months' services of Tester of above Association.

____

7.05

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Cow Testing Association Letter No. 7. December, 1925.

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COW TESTING ASSOCIATIONS---DEMONSTRATIONS OF FUNDAMENTAL VALUE.

Success in a demonstration is measured to a large extent by the improved practices adopted by the demonstrators. Some forms of demonstration work can show immediate results, while others extend over a period of years before the desired results are obtained.

The cow-testing association work is a demonstration involving some practices that show immediate results, while others take time before the greatest benefit accrues. Immediate returns in these organizations make the dairy farmer realize at the outset the value of the work. This in turn holds his interest and keeps him in the work so that those results requiring more time can be worked out for his conditions. Increase in milk production can oftentimes be accomplished by better methods of feeding and management suggested by the tester on his first few visits. It takes a little longer time to be certain of the boarder cows. When these are located definitely they can be eliminated from the herd. During this time the interest of the dairyman is being built up for permanent cow-testing association work. In other words, the cow tester, on the basis of the data obtained, is conducting feeding demonstrations and weeding demonstrations, tending toward more economical production of milk. All this work is laying the foundation for another big part of the demonstration program---better breeding.

In introducing better breeding in the cow-testing associations several steps are necessary. In the first place scrub bulls must be eliminated from the herds of the members. After purebred bulls have replaced scrubs in the association further work is necessary to locate those sires not transmitting high production to their daughters. This proved-sire work is the latest phase of the demonstration activity which is developing in the cow-testing association work at the present time and is a step requiring much time in order that the greatest results may be seen. A department circular entitled "Better Cows from Better Sires" is now being printed, giving the results of a study made from the cow-testing association records received by this bureau from the various States.

In order to determine whether the cow-testing associations were functioning as actual demonstrations, the annual statements of the cow-testing associations from several of the States were studied. One of the first demonstration steps is better feeding practices.

Michigan reports that the members of its cow-testing associations feed a great deal of alfalfa hay. The acreage of alfalfa increased from 8,174 acres in 1924 to 10,524 acres in 1925 on the 1,232 farms reported on which were 12,761 cows. This means 0.82 of an acre of alfalfa for each dairy cow reported in 50 associations. This acreage is an increase of 12.8 per cent alfalfa seeding on the farms of cow-testing association members in one year.

The acreage of sweet clover also made 127.7 per cent gain in one year on the members' farms.

The cow-testing association members all over Michigan are firm believers in using silage for succulence. It is found that 1,262 silos are owned and used by the 1,232 dairy farmers represented in this census.

In the same way, reports show how the Wisconsin cow-testing association members have profited from the feeding service. In 4,212 herds testing 75,168 cows, 2,916 herds are being fed balanced rations. This is 70 per cent of the total number. Thirty-three per cent are fed grain in summer, 55 per cent of the members feed grain to the dry cows, 100 per cent have silos, and 59 per cent raise alfalfa.

Minnesota reports that 65 per cent of its association members feed legume hay and that 83 per cent have silos.

A survey of 41 associations covering 859 farms in Iowa showed that there were 3,131 acres of alfalfa, 854 acres of soy beans for hay, 12,316 acres of clover hay, 11,587 acres of sweet clover for hay, 5,381 acres of timothy, 828 acres of soy beans for grain, and 627 silos.

Better breeding also has been heavily stressed in the testing work in these States. Michigan reports very few cow-testing associationsmembers using other than purebred sires. Ninety-two and one-half per cent of 1,232 members use only purebred sires, while 832 members, or 67.5 per cent, own purebred sires. Of these 832 sires, 108, or 13 per cent, are owned cooperatively as bull-association sires.

As stated by the Michigan extension authorities, this indicates that many cow-testing association members are keeping the purebred sire for a long time and that they realize the great value of proving a bull by getting records of his daughters.

In Wisconsin 9 per cent of the cow-testing association cows were weeded out as unprofitable and were sent to the butcher; 8 per cent were sold for dairy purposes. In this State 96.5 per cent of the members are breeding to purebred sires. Reports show that the cow-testing association cows average 6,858 pounds of milk and 271 pounds of butterfat as compared with the average Wisconsin cow's production of 190 pounds of butterfat.

From the Minnesota reports it is shown that the average cow-testing association cow in that State produces 7,350 pounds of milk and 269 pounds of butterfat, which is 83 per cent more milk and 68 per cent more butterfat than that produced by the average cow of Minnesota. Ninety-three per cent of the cow-testing association herds are headed by registered sires.

Iowa reports that in 62 associations 2,346 cows were sold for beef and 1,761 for dairy purposes.

In Pennsylvania, a tabulation showed the average production per cow in the cow-testing associations in 1924 to be 7,309 pounds of milk and 286.5 pounds of butterfat. This production is 85 per cent greater than that of the average cow of the State as given by the 1920 census.

If these results can be accomplished in the few States mentioned above, what can be expected from the 18,000 cow-testing association herds enrolled in more than 700 cow-testing associations in the United States?

In the demonstration of cow-testing association work, practices which have brought valuable results are better feeding; better methods of management; and better breeding, even to the extent of breeding to proved sires. These principles are fundamental to more economical production. If the fullest use is not made of the records or if they are not analyzed, the best results can not be obtained. Only by intelligent study of the records can improved practices be made possible.

J. H. McClain, in charge of dairy introduction, has just returned from a field trip to the Western States, where he attended the Pacific International at Portland, Oregon, and also the Western Extension Conference at Pullman, Washington.

At the Extension Conference the cow-testing association work was discussed, and the point was brought out that the greatest value was not being derived. To secure larger benefits, it was recommended that through campaigns and tours greater publicity be given to the work in order to bring it before the dairy farmers. This, of course, entails a close study of the cow-testing association records in order to secure the fundamental information necessary for such publicity.

WHAT THE TESTING ASSOCIATION DOES FOR ITS MEMBERS.

From Annual Report of
Salem-Cumberland-Gloucester
Cow-Testing Association,
New Jersey,
1924-1925.

P ronounces which cows are profitable.

R aises value of cows making creditable records.

O ffers means of cooperative breeding, buying, and selling.

F urnishes figures that enable feeding each cow according to production.

I ncreases interest in better bred stock.

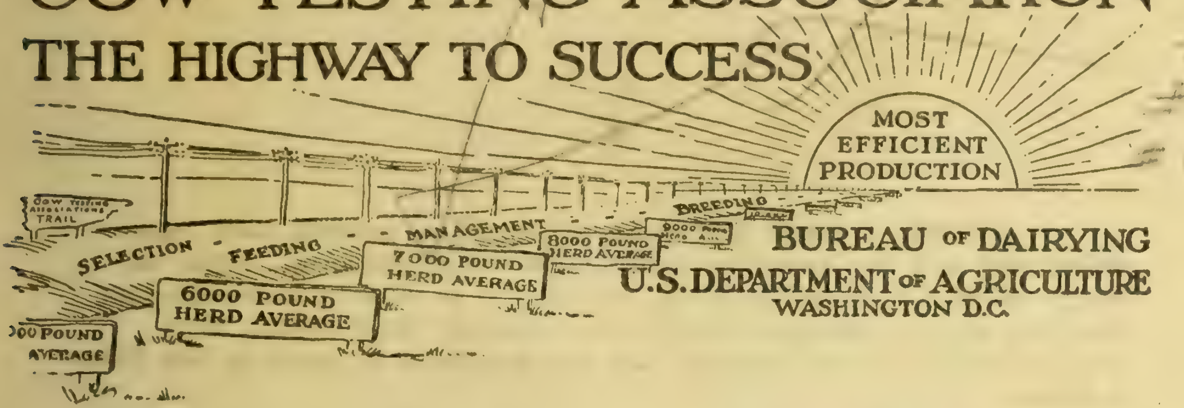
T ests bulls through records of daughters.

S tirs up among the members a feeling of friendship rivalry for herd betterment.

Several of the annual reports of Idaho cow-testing associations have a foreword that is clear-cut and to the point:

"To those poor unfortunate creatures whom the hand of fate has culled from herds of good cows because of unprofitable production, and have met their doom at the hand of the murderous butcher, we do happily dedicate this record, with the sincere hopes that all remaining of their kind will speedily follow in their footsteps."

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Cow Testing Association Letter. Volume 2, Number 1.

January, 1926.

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Looking Backward and Forward.

The cow-testing association work for 1925 has been brought to a close, and another year's work is in prospect. What have been the accomplishments in the past year? What will be the goals for the new year? The accomplishments in the work will be shown by the new directory when it becomes available next month. The selection of goals for which to strive during the coming year lies in our own hands.

The new tabulating machinery is working even better than our preliminary study indicated. Herd and association summaries are made for every association whose records are sent to the bureau for tabulation. In order to have a workable system and to treat every State with fairness, a roster has been established. Beginning with July 1, 1925, the records of each association have been listed according to the date of receipt in this office. In that way it is a case of first come first served. Each association is then tabulated in its regular order. As fast as the computations are completed the results are returned to the States.

In addition to the summaries just mentioned, only those tabulations listed in the October letter will be made. They are as follows: Relation of milk production to other factors; Relation of butterfat production to other factors; Influence of season of freshening; and Comparison of purebreds and grades. These last named tabulations, while holding true for individual associations, are more valuable when a considerable number of records are included. They will be made up for each State from groups of associations, in order to have the value given by large numbers of records.

Already a large number of association records have been tabulated and the results returned to the States. In order to keep the machines going at top speed and to show the cow-testing results as they really are, it is necessary that during this coming year records from all the associations be sent in for tabulation.

The work of locating proved bulls goes on, and 100 of these bulls--good and otherwise--have been found, that have five or more daughters. There are fully as many with only three and four daughters.

Copies of these comparisons are being returned to the States as fast as made. Completely filled-out strips from each association will make it possible to find not hundreds only, but literally thousands, of records of cow-testing association proved sires. Full cooperation is needed to bring out the greatest good from this valuable information.

A Department Circular entitled "Better Cows from Better Sires" has been prepared from these data on proved sires that have been obtained from cow-testing association records. The tables in this circular are based on the production records of over 2100 daughters of purebred bulls in test associations and the records of their dams. There are also comparative tables and charts based on the records of the first 58 proved sires having five or more daughters. This circular should be available for distribution in the near future. Copies of this publication when issued will be mailed to those receiving this letter.

A valuable and interesting report on cow-testing methods in the various countries has been issued by the International Institute of Agriculture at Rome. As excerpts from this report may be of interest, we will from time to time issue them in connection with these letters. This month the qualifications for testers in the various countries are given for your information.

In a later issue will be shown the distribution of over 5,000 testing organizations among the various countries, and the types of organizations.

Qualifications Necessary for Testers in Various Countries.

Denmark: The testers or assistant testers must have taken a three to six months' course in an agricultural or dairy school. There is also a special school for training the assistants.

Netherlands: In connection with the training of the testing staff the advisers on dairy questions, who are state officials, organize every year in their provinces theoretical and practical courses in which special attention is devoted to questions related to the composition of milk, the estimation of the fat content, methods of keeping records, etc. As a rule, persons who have attended these courses and taken the final examinations are appointed as testers.

Germany: The staff of "assistants" is, as a rule, recruited from the sons of farmers, preference being given to persons who have attended a winter agricultural school. In order to obtain these appointments, they must take special courses established by chambers of agriculture under the charge of the livestock inspectors. The objects of the course include the following: The organization and functions of cow-testing societies; theories of cattle feeding; experimental work on milk, and especially the determination of the butterfat content; the elements of veterinary science as applied to cattle; etc. The courses are naturally both theoretical and practical, and great importance is attached to the qualifications of an assistant, for the success of a society depends largely on his capacity and character.

Sweden: The necessary qualifications of an assistant milk tester are the possession of a diploma from a lower school of agriculture and previous attendance at a special course for six months. The work of the testers and of the societies is under the supervision, in certain Departments, of chief testers, who may be expert agricultural advisers or senior assistants, who visit the various associations at least once a year and carry out the inspections required.

Norway: The testers are recruited from persons who hold the diplomas of the practical schools of agriculture and have taken a special course for a period of two months.

Finland: The tests are carried out by women who have studied for at least one year in a practical school of agriculture and attended one of the courses held annually for assistant inspectors in twelve schools of household economy in the country. These courses, which last two months, are given by professors of agricultural science who have specialized in stock-breeding subjects.

Scotland: In Scotland, recorders are selected from persons of good character and good general education, and are required to attend a special three weeks' course at the Dairy School for Scotland at Kilmarnock. Persons who have attended full courses of instruction at one of the agricultural colleges are also eligible.

Latvia: The testers are generally selected from persons holding diplomas from the lower schools of agriculture or dairy schools. Appointments may be made of other persons who have had a certain amount of experience in a testing center and have attended one of the special training courses for testers.

United States: The tester must have a good personality and be well trained, be able to make the Babcock butterfat tests, and have a knowledge of general herd management, especially the principles of dairy cattle feeding. Short courses for testers are given at some of the agricultural colleges. There are no subsidies granted by any of the States for the work of the associations, and each association is self-supporting.

New Zealand: There are no scheduled qualifications required for appointment as testing officer, but all persons so appointed must have had dairy factory experience and possess a working knowledge of dairy farm conditions. All applicants are submitted to examination prior to appointment.

Ireland: The supervisors are selected from persons who have attended a course of instruction in agriculture and have taken a short course of special training.

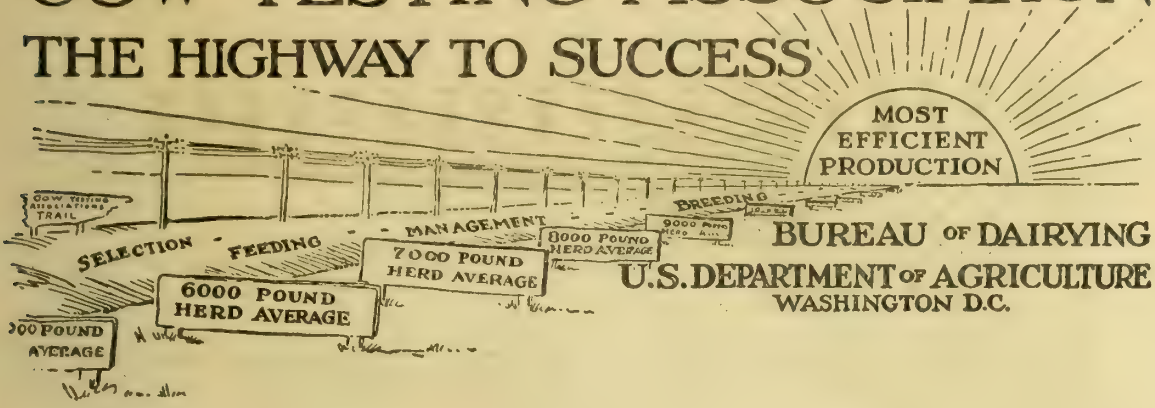
England and Wales: Special training courses for recorders are arranged when required.

Canada: The testers are usually trained in the dairy schools.

Japan: The testers are technicians who have obtained their diplomas in the higher schools of agriculture. They are paid by the societies. No special training is given to these officials.

Union of South Africa: The official recorders must be fully qualified for making milk tests by the Gerber method and must have received special training either in a South African agricultural school or in a similar approved overseas institution.

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Cow Testing Association Letter Volume 2, Number 2

February, 1926.

DIRECTORY
of
COW TESTING ASSOCIATIONS
and
BULL ASSOCIATIONS
in the
UNITED STATES

Active January 1, 1926.

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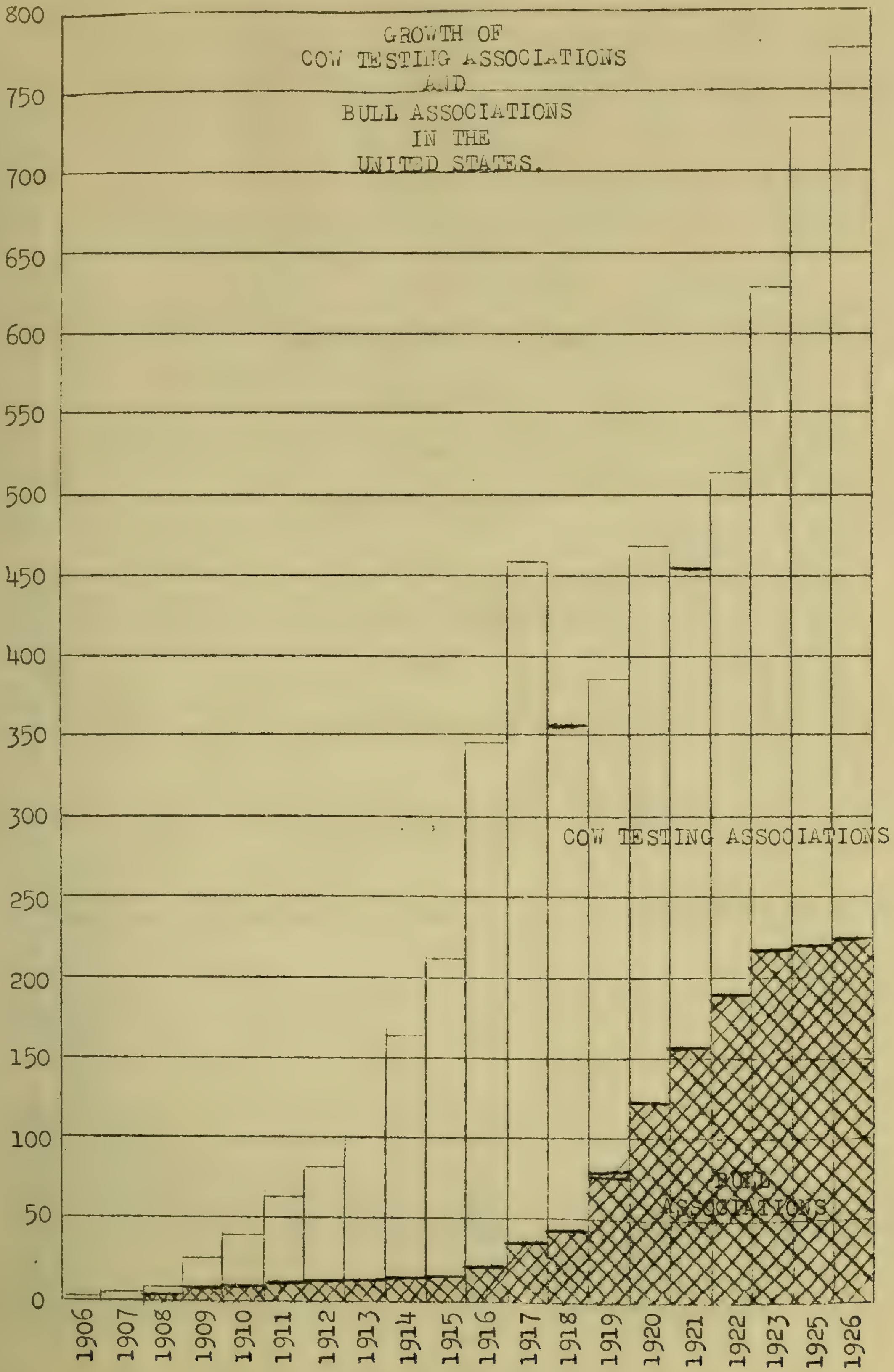

GROWTH OF
COW TESTING ASSOCIATIONS
AND
BULL ASSOCIATIONS
IN THE
UNITED STATES.

icials in Charge of Cow Testing Associations and Bull Associations in the States.

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ANSAS.......W.H. Woodley, Extension Service, College of Agriculture, Fayetteville.

IFORNIA.....G.E. Gordon, Extension Service, College of Agriculture, Berkeley.
ORADO.......W.H. Gunther, c/o State Dairy Commissioner, Fort Collins.
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AWARE.......C.A. McCue, Director of Extension, School of Agriculture, Newark.

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EW MEXICO.....E.E. Anderson, Extension Service, N.M. College of Agriculture, State College.
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ORTH DAKOTA...A.M. Challey,Agri. Ext., N.Dak. Agricultural College, Agricultural College.

HIO...........Ivan McKellip, Agri. Ext. Work, College of Agriculture, Columbus.
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REGON.........N.C. Jamison,Extension Service,Oregon Agricultural College, Corvallis.

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OUTH CAROLINA.J.P. LaMaster, Extension Service, Clemson Agri. College, Clemson College.
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EST VIRGINIA..J.V. Hopkins, Extension Division, College of Agriculture, Morgantown.
ASHINGTON.....S.B. Nelson, Director of Extension, State College of Agriculture, Pullman.
ISCONSIN......A.J. Cramer, Agri. Ext. Service, College of Agriculture, Madison.
YOMING........D.J. Robertson, Agri. Ext., College of Agriculture, Laramie.

GROWTH OF COW TESTING ASSOCIATIONS, 1906-1926.

Up to and including 1923 data were collected on July 1. Beginning with 1924
orts are made by calendar years. Last column gives data for January 1, 1926.

te.	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26
higan:	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108
ne			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1
York			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28
mont				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23
a				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61
ifornia				1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30
consin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169
raska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6
orado					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6
nsylvania					1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43
o					1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25
hington					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8
yland						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10
inois						4	3	2	7	3	3	17	15	27	23	25	24	23	24	26
nesota						3	7	10	9	11	22	26	23	21	19	23	37	55	66	84
Hampshire						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4
gon						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8
h						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4
sachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6
ginia						2	2	2	0	0	2	4	4	5	8	10	12	13	15	18
sas								1	1	1	1	4	3	15	13	13	13	9	8	11
iana								2	2	3	7	9	7	10	5	10	5	10	17	25
tucky								1	1	0	1	1	0	0	5	5	2	3	2	0
souri									2	1	2	5	4	5	6	7	11	12	13	19
Jersey									2	3	4	8	9	9	12	8	6	6	6	9
t Virginia									1	1	3	1	1	1	3	5	5	6	3	3
necticut									1	3	6	3	0	0	1	0	2	1	1	2
th Carolina									2	0	0	0	0	0	2	2	0	0	2	5
isiana									1	0	0	0	0	0	1	0	0	0	0	0
th Dakota									1	1	3	3	0	0	0	0	0	4	11	9
ada										1	0	1	0	0	0	1	1	4	3	1
zona											2	2	1	0	0	2	1	1	2	1
de Island											2	2	0	0	4	4	4	3	0	0
aware											2	3	2	2	1	0	0	0	0	0
ho											2	1	1	4	5	6	4	8	8	8
sissippi											1	0	0	0	0	3	2	1	1	2
tana											1	2	0	0	0	0	0	2	4	3
nessee											1	8	4	6	3	3	4	2	2	2
Mexico												1	0	0	0	1	1	1	0	1
ning												1	0	1	0	0	0	0	1	0
bama													2	1	3	1	1	0	0	0
rgia													1	0	0	0	0	0	0	0
th Dakota													1	1	1	2	6	8	5	3
ahoma														1	1	2	1	3	5	5
th Carolina														1	1	1	0	0	0	0
as														3	0	0	0	0	0	0
ansas															1	2	2	2	0	0
al	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777

Herds and cows under test January 1, 1926, in cow-testing associations.

State.	Number of associations.	Number of herds.	Number of cows.	Average per association.	
				Herds.	Cows.
Arizona	1	44	1,290	44.0	1,290.0
California	30	1,207	48,501	40.2	1,616.7
Colorado	6	104	1,723	17.3	287.2
Connecticut	2	36	690	18.0	345.0
Idaho	8	321	3,793	40.1	474.1
Illinois	26	680	13,175	26.2	506.7
Indiana	25	616	8,084	24.6	323.4
Iowa	61	1,473	21,485	24.1	352.2
Kansas	11	256	3,790	23.3	344.5
Maine	1	16	137	16.0	137.0
Maryland	10	194	4,636	19.4	463.6
Massachusetts	6	145	2,289	24.2	381.5
Michigan	108	2,716	29,223	25.1	270.6
Minnesota	84	2,005	25,855	23.9	307.8
Mississippi	2	36	549	18.0	274.5
Missouri	19	452	6,990	23.8	367.9
Montana	3	63	1,222	21.0	407.3
Nebraska	6	125	2,287	20.8	381.2
Nevada	1	3	90	3.0	90.0
New Hampshire	4	81	1,460	20.2	365.0
New Jersey	9	224	5,075	24.9	563.9
New Mexico	1	29	566	29.0	566.0
New York[1]	28	594	12,354	23.8	494.2
North Carolina	5	88	2,722	17.6	544.4
North Dakota	3	44	778	14.7	259.3
Ohio	25	553	7,890	22.1	315.6
Oklahoma	5	69	1,060	13.8	212.0
Oregon	8	393	7,226	49.1	903.2
Pennsylvania	43	990	15,076	23.0	350.6
South Dakota	9	205	2,624	22.8	291.6
Tennessee	2	33	1,032	16.5	516.0
Utah	4	185	2,150	46.2	537.5
Vermont	23	503	9,623	21.9	418.4
Virginia	18	329	9,286	18.3	515.9
Washington[2]	8	234	7,525	46.8	940.6
West Virginia	3	54	920	18.0	306.7
Wisconsin[3]	169	4,440	64,477	26.6	381.5
Total Average	777	19,540	327,653	25.1	421.7

1 - Data reported on 25 associations.
2 - Data reported on number of herds in 5 associations.
3 - Data reported on 167 associations.

COOPERATIVE BULL ASSOCIATIONS, SUMMARY BY STATES, JANUARY 1, 1926.

tate	No. of assns.	No. of members	No. of bulls	Breed Used**						No. of Cows		
				J.	G.	H.	A.	B. S.	S. H.	Purebred	Other	Total
rkansas	7	576	39	33	6					236	902	1138
onnecticut	2	23	8	4		4				231	286	517
eorgia	2	17	7	7						24	160	184
daho	32	807	159	48	16	95				331	5080	5411
llinois	11	334	64	21	22	21				378	2242	2620
ndiana	3	66	10	7		3				57	414	471
owa	2	24	10			10				52	325	377
ansas	1	13	5			5				78	175	253
entucky	18	765	56	49	3	4				456	2326	2782
ouisiana	3	32	11	11						0	*-	350
aryland	3	14	14		9	5				125	255	380
ichigan	4	125	15		3	12				420	830	1250
innesota	19	612	92		57	35				33	2443	4234***
ississippi	7	302	29	29						283	1307	1590
issouri	12	320	48	45		3				323	1777	2100
ontana	1	35	5		5					0	185	185
ebraska	5	61	20	4		16				95	535	630
evada	2	41	6	3		3				22	245	267
ew Mexico	1	12	4			4				43	134	177
orth Carolina	2	336	20		20					404	1190	1594
orth Dakota	2	29	13			6	7			17	367	384
hio	3	-*	12	7		5				*-	*-	*-
klahoma	7	263	31	28		3				805	1124	1929
regon	1	38	5	5						75	240	315
ennsylvania	38	540	155	33	15	97	7	3	3	3887	4180	8067
outh Carolina	9	212	34	23	11					258	985	1243
outh Dakota	2	27	18			18				0	202	202
ennessee	4	202	19	19						400	726	1126
tah	14	569	61	16	9	36				292	1895	2904***
ermont	1	11	4	4						71	123	194
irginia	2	86	12		8	4				51	332	383
ashington	4	69	14	11	3					*	*	461
yoming	1	19	3			3				0	135	135
otal	225	6640	1006	407	137	392	14	3	3	9447	31120	43853

*Not reported.

* J - Jersey

G - Guernsey

H - Holstein

A - Ayrshire

BS - Brown Swiss

SH - Milking Shorthorn

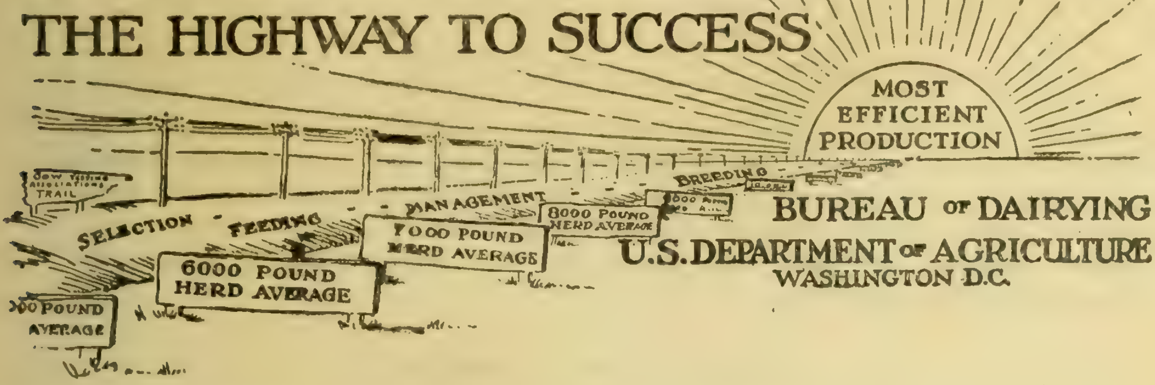
* For some associations totals only were given.

COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES, ACTIVE EACH YEAR
from July 1, 1908, to January 1, 1926. (a)

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26
Michigan	3	7	8	9	7	8	9	8	8	8	7	7	7	7	5	7	6	4
Minnesota		1	1	1	1	2	2	2	3	3	3	4	6	15	19	17	18	19
Maryland............				1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
North Dakota					2	1	1	1	1	1	1	1	1	1	1	2	3	2
Vermont							1	1	1	1	1	2	3	5	4	2	2	1
Oregon..............................								1	2	2	2	2	2	2	2	1	1	1
Wisconsin								1	1	1	1	2	1	3	4	4	0	0
Illinois									1	1	1	1	1	1	6	7	8	11
Iowa....................................									1	1	1	1	1	1	2	2	2	2
Massachusetts									1	1	1	1	0	0	0	0	0	0
North Carolina									1	4	5	8	9	9	9	9	3	2
South Carolina...........................									3	9	9	11	17	20	23	16	10	9
Pennsylvania										2	4	10	21	21	27	24	28	38
Missouri										1	1	1	3	7	10	10	10	12
Indiana..................................											1	3	5	7	7	7	4	3
Utah											3	2	2	2	3	8	14	14
Montana											1	2	2	2	0	1	1	1
Kansas..................................											1	1	1	1	1	2	1	1
Alabama												1	7	7	7	7	7	0
Georgia												2	1	1	0	0	2	2
Louisiana...................................												1	1	1	1	1	1	3
Mississippi												6	11	12	10	9	8	7
New Jersey												1	4	6	8	8	2	0
Rhode Island.................................												1	1	1	1	0	0	0
Tennessee												2	2	2	2	4	4	4
Washington												1	2	2	3	3	4	4
Wyoming.....................................												2	2	2	2	2	1	1
Arkansas													3	2	4	6	6	7
Idaho													3	6	9	29	32	32
Nevada......................................													1	1	1	1	1	2
Oklahoma													1	1	1	4	7	7
Kentucky														3	7	9	17	18
Connecticut.....................................														1	1	2	2	2
New Hampshire														1	0	0	0	0
Virginia														1	1	2	2	2
West Virginia.....................................														1	1	1	0	0
Florida														1	1	1	0	0
Nebraska															1	2	4	5
Ohio..															2	2	3	3
Texas															2	2	0	0
Maine																2	1	0
New Mexico																	1	1
South Dakota																	1	2
Total	3	8	9	11	11	12	14	15	24	36	44	73	123	158	190	218	220	225

(a) No directory was issued July 1, 1924.

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



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Cow Testing Association Letter Volume 2, Number 3.

March, 1926.

THE TEN-COW HERD RECORD BOOK

About a year ago, in response to requests and recommendations, a ten-cow record book was prepared and distributed as an experiment for use in so-called short-cut testing organizations. This method of distribution has not proved practical from the standpoint of the Bureau of Dairying, and in the interest of economy, it has been decided to discontinue the publishing of this book. From now on the bureau will supply no more copies of this style of record book. It is suggested that some of the States will be able to mimeograph these books for their own use.

The regular cow-testing association forms, such as the milk sheets, barn books, herd record books, and summary sheets, should not be used in the short-cut testing organizations. Their distribution is limited exclusively to members of the regularly organized cow-testing associations.

A field trip to several of the States where cow-testing work is carried on, made recently by Mr. J. B. Parker of this bureau, indicates that the new rules adopted by the American Dairy Science Association are being successfully applied.

TABLE TO BE USED IN CENTERING THE TESTING DAY

The following table, which was worked out by the dairy extension specialists in Illinois, may prove of benefit to the States in introducing the centering of the testing day in computing cow-testing association records.

"The testing period as centered on each testing day of every month can be determined from the following table. The testing day (the day of the month on which the first test of the association year was made) is found in the first column and the testing period includes the dates given in the column under the month for which the test is made. The testing period contains as many days as there are days in the month. In calculating a fractional testing period for a fresh cow, be sure that you INCLUDE the fourth day after freshening. Do not vary the actual testing day more than three or four days before or after the established testing day.

Centering the Testing Day

Testing Day	January August 31 days	February 28 days	March 31 days	April, June September November 30 days	May, July October December 31 days
1	17° to 16	17° to 13	14° to 16	17° to 15	16° to 16
2	18° to 17	18° to 14	15° to 17	18° to 16	17° to 17
4	20° to 19	20° to 16	17° to 19	20° to 18	19° to 19
6	22° to 21	22° to 18	19° to 21	22° to 20	21° to 21
8	24° to 23	24° to 20	21° to 23	24° to 22	23° to 23
10	26° to 25	26° to 22	23° to 25	26° to 24	25° to 25
12	28° to 27	28° to 24	25° to 27	28° to 26	27° to 27
14	30° to 29	30° to 26	27° to 29	30° to 28	29° to 29
15	31° to 30	31° to 27	28° to 30	31° to 29	30° to 30
16	1 to 31	1 to 28	1 to 31	1 to 30	1 to 31
17	2 to 1*	2 to 1*	2 to 1*	2 to 1*	2 to 1*
18	3 to 2*	3 to 2*	3 to 2*	3 to 2*	3 to 2*
20	5 to 4*	5 to 4*	5 to 4*	5 to 4*	5 to 4*
22	7 to 6*	7 to 6*	7 to 6*	7 to 6*	7 to 6*
24	9 to 8*	9 to 8*	9 to 8*	9 to 8*	9 to 8*
26	11 to 10*	11 to 10*	11 to 10*	11 to 10*	11 to 10*
28	13 to 12*	13 to 12*	13 to 12*	13 to 12*	13 to 12*
30	15 to 14*		15 to 14*	15 to 14*	15 to 14*
31	16 to 15*		16 to 15*		16 to 15*

°Date of the previous month.
*Date of the following month.

Note: This table only needs to be consulted the first trip around the association, during the last round, when cows freshen during the testing year, and when cows go dry."

Summary of Cow Testing Circles in Operation, January 1, 1926.

State	Clubs and circles	Herds	Cows	Average number in each circle or club	
				Herds	Cows
California	6	116	1,654	19.3	275.7
Georgia	1	7	85	7.0	85.0
Illinois	1	35	550	35.0	550.0
Kansas	2	11	195	5.5	97.5
Maryland	2	20	400	10.0	200.0
Massachusetts	2	89	560	44.5	280.0
Minnesota[1]	4	124	881	41.3	293.7
Missouri	2	10	79	5.0	39.5
Montana	9	80	860	8.9	95.6
Nebraska	8	66	734	8.2	91.8
New Jersey	2	12	200	6.0	100.0
New York[2]	11	67	–	6.1	–
North Dakota[3]	9	74	1,102	9.2	137.8
Ohio	4	91	1,185	22.7	296.2
Oklahoma	6	93	688	15.5	114.7
Rhode Island	2	9	160	4.5	80.0
South Dakota	3	27	265	9.0	88.3
Washington	1	108	1,007	108.0	1,007.0
West Virginia	1	10	96	10.0	96.0
Total Averages	76	1,049	10,701	14.2	169.9

1 - Data reported on three clubs.
2 - Number of cows not reported.
3 - Data reported on eight clubs.

These circles, not being fully organized cow-testing associations, are omitted in counting the number of associations in each State.

Development of Cow Testing Schemes in Different Countries

Country	Year 1st testing society was established.	Present no. of testing societies.	Year to which statistics relate.	No. of cows regularly tested.
Denmark	1895	1,083	1923-24	412,022
Netherlands	1896	482	1921	155,900
Germany	1897	1,100	1922	430,242
Sweden	1898	507	1921-22	162,986
Norway	1898	204	1923	45,181
Finland	1898	372	1924	110,000
Scotland	1903	40	1922	28,000
United States	1906	777	1926	327,653
New Zealand	1909	77	1922	78,578
France	1910	30	1920	5,000
Ireland	1911	178	1924	43,230
England & Wales	1914	55	1923	104,000
Canada	- -	- -	1922	47,895
Australia				
N.S.Wales	1908	32	1922	35,000
Victoria	1913	--	1921-22	1,183
S.Australia.......	- -	--	1922-23	650
Belgium	- -	--	1922	273
Czechoslovakia	1905	35	1922	10,000
Switzerland	- -	--	1922	4,000
Japan	1911	15	1922	463
Italy	1922	1	1922	692
Union of South Africa	- -	--	1922	540
Latvia	1904	149	1922	20,535
Total		5,137		2,024,023

COW TESTING ASSOCIATIONS
LIGHT THE WAY TO MOST EFFICIENT PRODUCTION

BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Cow Testing Association Letter
Volume 2, Number 4.

APR 17 1926

April, 1926.

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PROGRESS OF THE TABULATION WORK

In September, 1925, the first herd and association summary was made on the electric tabulating machine. Since that time the work has progressed more and more rapidly until at the present time over 300 tabulations have been sent to twenty-two States.

These tabulations make it possible to determine the State cow-testing association averages in milk and butterfat production. They allow comparisons of production of the same associations over a period of years, and also similar comparisons of the various herds.

The work will be expedited if the records of each association can be forwarded to this office for tabulation as soon as the State dairy specialist has gone over them, instead of waiting until a number collect. This office is able to handle the records of about four associations a day, and if these records come in regularly it will assist us in keeping the tabulations worked up to date and in returning the records to the States promptly. Your cooperation in making this work as efficient as possible will be appreciated.

NEEDLESS WASTE OF GOOD SIRES

Dead bulls tell no tales, but the evil they have done lives after them. What the good bulls might have done, if not slaughtered prematurely, is buried with their bones.

A department circular, based on cow-testing association records, has recently been issued showing the effect that 58 purebred sires have had on the production of their daughters. In addition to the information on production, a knowledge of the disposition of these sires was thought necessary. Information blanks were sent to the various States, and replies have been received concerning 22 of these sires. It is realized that this is not a large number, but as straws show which way the wind blows so the information on these 22 sires show the tendency in the disposition of the purebred sires in our dairy herds.

The information blanks offer some replies to the questions:

Are good bulls recognized and kept in service?
Are good bulls sent to the butcher and their service wasted?
Is selection of bulls practiced and only the undesirable ones disposed of?

The following outline pictures in a graphic manner the answers to the three questions just given.

Disposition of 22 Proved Sires with Cow-Testing Association Records of 136 Daughters and Their Dams

Of the 22 sires 5 are alive and in service today. The 5 sires have 31 daughters that averaged 1,662 lbs., or 17% more milk, and 84 lbs., or 23%, more butterfat than their dams

Of the 22 sires 17 were slaughtered for various reasons. Their 105 daughters showed an average increase over their dams of 615 lbs., or 7% in milk and 11 lbs., or 3% in butterfat

11 of the 17 sires shown above were good bulls. Their 67 daughters showed an increase over dams of 1861 lbs., or 22%, in milk and 67 lbs., or 20%, in butterfat

6 of the 17 were poor bulls. Their 38 daughters averaged 1582 lbs., or 17%, less milk, and 89 lbs., or 20%, less butterfat than their dams

9 good sires went for beef. Their 54 daughters averaged 2,006 lbs., or 23%, more milk, and 70 lbs., or 21%, more butterfat, than their dams

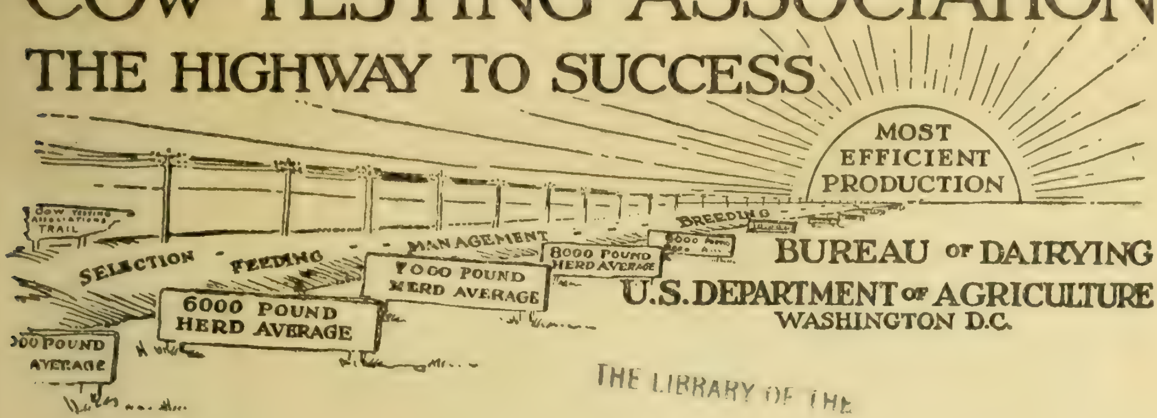
2 good sires went for beef because of sterility. Their 13 daughters averaged 1,259 lbs., or 17%, more milk, and 52 lbs., or 13%, more butterfat, than their dams

2 became sterile
1 died
3 slaughtered for beef

From the foregoing table it can be seen that evidently the value of some good sires was recognized. Perhaps the poor sires were also recognized. The unfortunate part is that in the weeding out process, if such a practice existed, 11 out of the 17 dead sires were real outstanding sires from the standpoint of transmitting production to their offspring.

Completely filled out tabulation strips will aid in locating more of these good sires, but the unsolved problem still remains! How are the bulls to be kept until their records prove them either good or otherwise?

COW TESTING ASSOCIATION
THE HIGHWAY TO SUCCESS



BUREAU OF DAIRYING
U.S. DEPARTMENT OF AGRICULTURE
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Cow-Testing Association Letter Volume 2, Number 5.

May, 1926.

AN OPEN FORUM ON PUBLICITY OF COW-TESTING ASSOCIATION RESULTS.

At the conference of the Western Extension Directors held last fall at Pullman, Washington, it was recommended that more effective methods for publicity of cow-testing association results be instituted in order to realize the greatest possible good from the valuable information available.

One of the most readily available means for disseminating publicity to the testers, county agents, and members is through the medium of a monthly report of the associations in the State. A majority of the States conducting these organizations now publish such a letter. There is a wide range of form between these various State publications, and the question has been raised whether the greatest possible good is being derived from them. May it not be possible by means of frank discussions of the best principles of each to work out ideas and programs that will secure maximum publicity value?

If all who are interested in this subject care to answer the following questions, we shall be glad to assemble the answers in future issues of this letter with the hope that from the good thoughts of many, something of publicity value may be obtained by all.

1. Do you publish a monthly cow-testing association news letter?
2. What items are considered in this letter?
3. What do you consider the most important items?
    - (a) from the specialist's viewpoint?
    - (b) from the tester's viewpoint?
    - (c) from the standpoint of general publicity value?
4. What suggestions do you have for increasing the publicity value?

PROGRESS OF THE TABULATION WORK

We are now up to date in the tabulation of herd and association summaries from records received since July 1, 1925. Our reports show, however, that some States have not as yet forwarded to us all the records from the associations operating in 1924-25. We shall appreciate receiving these for summarization in order to make the work as nearly complete as possible. The records tabulated this year indicate that the average production of milk per cow in the test associations is approximately 7,000 pounds. This is a gain of about 1,000 pounds of milk per cow over the records tabulated a few years ago.

Our tabulation work will be greatly facilitated if all the records for an association be sent in at one time. If part of an association is sent in to-day and the remainder two weeks later, confusion results. We are not in a position to know the size of each association and consequently when the later records come in, oftentimes it necessitates making an entirely new tabulation to cover the work of the whole organization. Your cooperation is earnestly requested.

HUMAN INTEREST STORIES FROM COW TESTING ASSOCIATION RECORDS

We have yet to see a tabulation based on cow-testing association records, whether a herd and association summary, milk production tabulation, butterfat, purebreds and grades, etc., that does not contain several telling comparisons. These, together with the information concerning the actual farm conditions, make real human interest stories.

In writing to the dairy extension specialist in one State when transmitting a herd and association summary, we commented in part concerning one of these comparisons: "It is interesting to compare herds Nos. 17 and 18 in this association. Herd No. 17 consisted of 21 cows, while herd No. 18 consisted of 9 cows. The smaller herd produced almost twice as much milk and butterfat per cow as the larger herd and returned considerably more than twice as much per cow in value of product above feed cost. If we multiply $31.79, the income above feed cost for the larger herd, by 21, the number of cows in the herd, the product is $667.59. If we multiply $73.62, the income above feed cost per cow for the smaller herd, by 9, the number of cows in that herd, the product is $662.58. Therefore, the 21 cows brought in very little more income over cost of feed than the 9 cows, but we must not forget that the owner of the larger herd had the pleasure of milking, feeding, and watering 12 more cows for the greater part of the year. Perhaps he enjoys doing that sort of thing, but I believe if he had known

the facts in the case he would have taken means to improve the average production of his dairy cows. Because he fed no grain is probably not the only reason why his herd had such a low butterfat average and low income above feed cost. It is quite possible that his herd is not as well bred or as closely culled as it ought to be."

In reply to the above letter the dairy extension specialist in that State replied in part:

"I was very interested in your observations on herds No. 17 and 18. I am well acquainted with the owners of these herds and know something of their circumstances.

"The owner of herd No. 17 milks a large number of cows and supplies market milk for a town. His cows were bought in _______ about three years ago. He is one of the men who believes in buying his way into the dairy business rather than by going slow and developing a good herd. He paid high prices for some of these cows and had a great many disappointments in them. He is quite an extensive farmer and while he has a very productive farm there is a possibility that he may not be on it very much longer.

"The owner of herd No. 18, on the other hand, has been living on a rented farm and has never farmed very extensively. He is a considerably younger man. He has paid attention to careful selection of his cows and has fed them well but not too well. I was told just a day or two ago that he is considering the purchase of a farm in his locality."

From the above facts it appears that one man is on the upgrade winning out, while the other is on the downgrade. The cow-testing association tests not only the cows and the bull, but also the man.

COW TESTING ASSOCIATIONS
LIGHT THE WAY TO MOST EFFICIENT PRODUCTION

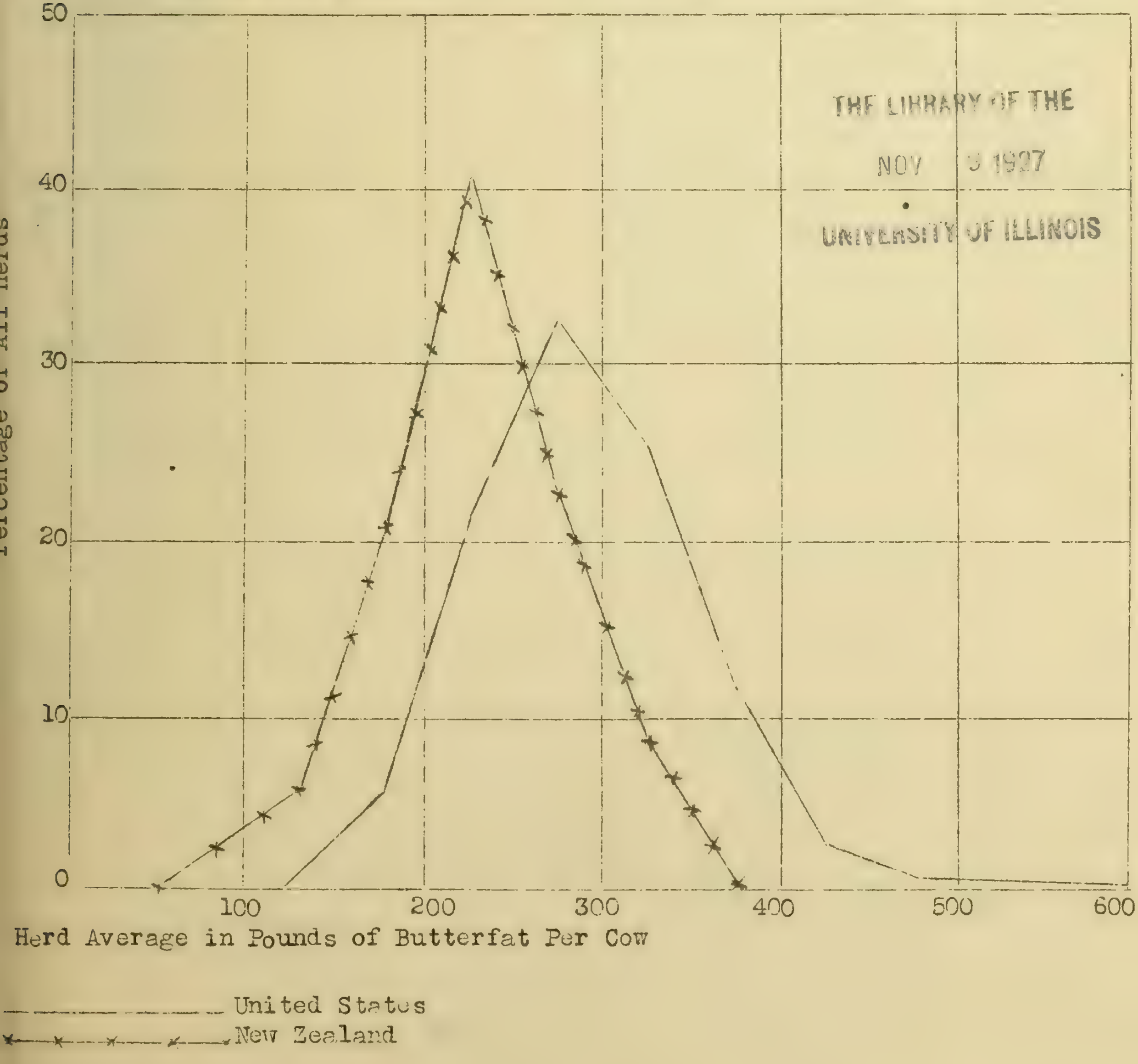
BUREAU OF DAIRYING
U.S.DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Cow-Testing Association Letter

Volume 2, Number 6.

June, 1926.

COMPARISON OF AVERAGE HERD PRODUCTION IN NEW ZEALAND AND THE UNITED STATES FROM 1924-1925 COW-TESTING ASSOCIATION RECORDS



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Comparison of Average Herd Production in New Zealand and the United States from 1924-1925 Cow Testing Association Records.

United States			New Zealand		
Average production of butterfat Pounds	Number of herds	Percentage	Average production of butterfat Pounds	Number of herds	Percentage
Below 100	-	-	Under 100	6	0.5
100-149	25	0.5	101-160	76	6.0
150-199	282	5.6	161-200	272	21.7
200-249	1,080	21.5	201-250	504	40.1
250-299	1,631	32.4	251-300	287	22.8
300-349	1,261	25.1	301-350	107	8.5
350-399	562	11.2	351-400	5	0.4
400-449	140	2.8			
450-499	41	0.8			
500-549	7	0.1			
550-599	-	-			
600-649	1	-			
Total	5,030			1,257	

Several tables recently received from New Zealand based on the herd testing results for 1924-25 give an opportunity for comparing the testing work in the United States with that in New Zealand. The latter country is making rapid progress in testing work both in numbers of cows on test and in production. In 1923-24 the average association cow produced 207.81 pounds of butterfat, while in 1924-25 the average was 227.52 pounds. This is a gain of practically 20 pounds in one year. The production of the cow-testing association cows in the United States in 1924-25, based on the records tabulated so far, appears to be between 275 and 280 pounds of butterfat.

CONTINUOUS TESTING PAYS.

Reports from two Pennsylvania cow-testing associations for 1925-26 picture in a striking way the benefits resulting from membership year after year. The records of two herds that were in association work for seven years are shown below.

Herd A

Year	Av. No. of Cows	Lbs. Milk	Lbs. Butterfat
1919-20	8.25	6,356	209.4
1920-21	8.58	8,047	248.3
1921-22	8.50	8,705	287.1
1922-23	7.63	8,826	267.4
1923-24	9.92	10,816	325.0
1924-25	12.92	10,470	334.0
1925-26	15.75	10,831	344.5
Increase per cow in 7 years --		4,475	135.1

Herd B

Year	Av. No. of Cows	Lbs. Milk	Lbs. Butterfat
1919-20	8.50	6,345	210.9
1920-21	9.00	7,321	248.8
1921-22	9.58	8,837	300.7
1922-23	9.25	9,429	311.9
1923-24	10.67	9,672	325.3
1924-25	10.75	10,818	378.0
1925-26	11.50	11,907	380.9
Increase per cow in 7 years --		5,562	170.0

It would be enlightening to know the history of these two herds. The real facts other than the cold production figures would form the basis for real human interest stories.

COW TESTING ASSOCIATIONS
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Cow-Testing Association Letter Volume 2, Number 7.

July, 1926.

TESTER'S CONFERENCES

The increasing number of States conducting State-wide or regional conferences of cow-testers suggests the value of such gatherings as a means of contact, supervision, and exchange of ideas that are not possible solely by individual visits to the testers. A number of such meetings have been attended by Mr. Parker during the past 18 months and without exception the increased interest and enthusiasm carried back by the testers to their associations is stated by the dairy specialists to be ample repayment for the efforts spent in conducting such conferences.

RETURNS ON THE OPEN FORUM REGARDING PUBLICITY OF COW-TESTING ASSOCIATION RESULTS.

Several States have replied to the questions listed for discussion.

In reply to the question "Items Considered" the following information was given:

Two States list the average production by associations.
All of the States publish the Honor Roll cows.
One State lists the high cows in each association.
Two States list the 10 high herds in butterfat production.
One State groups the high herds by size: (1) Above 15 cows;
(2) Between 5 and 15 cows, and (3) Under 5 cows.

Items considered: (Con'd)

One State has an extension feed service in the news letter.

Three States include the publicity notes by the testers. Of these notes Mr. Higgins of Mississippi writes: "We usually start out by giving some association news or the developments on some special member's farm, followed by timely suggestions with reference to feed growing, feeding, and other important phases of dairying."

Miscellaneous items include number of unprofitable cows sold, separators tested, and number of cows in milk and dry.

Interesting replies were obtained for the questions:

What do you consider the most important items?
  (a) from the specialist's viewpoint?
  (b) from the tester's viewpoint?
  (c) from the standpoint of general publicity value?
What suggestions do you have for increasing the publicity value?

These replies can best be told in the words of the specialists. Mr. D. L. Fourt of Idaho states:

"I consider the general summary, the high herds and the tester's notes, to be of the most importance from a publicity standpoint. Up until recently, we have published the three high cows in each association, the three high cows in the State; however, we feel that this practice has not served the purpose that we desire, since the high monthly record of individual cows often does not mean much and gives the wrong idea of C. T. A. work. We are trying to keep away from the members getting the idea that the value of C. T. A. work is to sell their cows, hence we are emphasizing herd averages and improvements and the adoption of approved practices to a greater extent."

Mr. G. A. Williams of Indiana states:

"Most important thing from Specialist's viewpoint is the matter of getting timely suggestions to the dairymen. From tester's viewpoint: checking up on their records, and giving information on feeding. From general publicity standpoint: a combination of two above points."

Mr. G. W. Tailby, Jr., of New York states:

"(a) In order of importance: records of high herds, notes by testers.

(b) Feed Service, notes by testers, records of high herds, records of high cows.

(c) Notes by testers, records of high herds, records of high cows.

"More complete reports from the testers would help increase the publicity value. More stories from the testers and more follow-up work after the end of each year would increase the value of the association to each member and also give more publicity. A visit to the farm with the summarized herd book and a talk with the owner would bring out to each member all important points which his herd book teaches. These visits would give many good stories for publicity.

"I believe that we should follow up the association work more carefully after the completion of each year by taking the summarized book back to the owner and discussing with him the results of the year's work, he will get much more from the records and often times good publicity stories will be obtained. I am enclosing a copy of a paper giving the yearly report of one of our testers. This was worked out by the tester without any help from this office."

Mr. L. A. Higgins of Mississippi states:

"(a) From the Specialist's viewpoint, I consider timely news relative to developments on the various farms in the Association of most importance.

"(b) Such items as will inspire greater confidence in the tester, published in local paper.

"(c) Such items as will create a greater interest in Cow-Testing Association work generally, such as giving results from the test work along the line of comparisons between high and low cows, high and low herds, and a general knowledge of feeding, breeding, etc., as developed through production records.

"I believe the tester or the Secretary of the Association should get as much publicity in the local papers as possible, always watching carefully for any news item which he may be able to get into local papers."

This is still an open subject if there are more comments.

FEED FIGURES ON THE TABULATION STRIPS

It is believed that the data on feeds listed on the tabulation strips will be a source of valuable information. Studies are now underway to analyze the material and at the start one thing becomes evident. It will not be necessary to include feed information on any of the strips except for those cows on test the full 12 months (in milk and dry). This will give the tester some additional time to include more complete and accurate information concerning the feed consumption of the 12-month cows.

In this study we find, for example, that in a 12-cow herd a tester will often indicate the same amount of hay per cow. On the strips for 10 cows he will list it as "clover hay" and on the remaining 2 strips will list it as just "hay" or call it "mixed hay." Questionable items of this nature can not be considered in tabulation work and such records will not be included.

With the hearty cooperation of all interested valuable studies can be made and feed tabulations based on such data returned to the States.

MORE AND BETTER ASSOCIATIONS

Oftentimes progress information is helpful. Recently the various States using our cow-testing association forms were asked for their estimates of forms needed for the calendar year 1927. One question asked was the number of associations now in operation. Practically all the States have been heard from and the returns show that at the present time there are approximately 840 associations as compared with 777 on January 1, 1926. This is a wonderful record for 6 months and is a greater gain than for the 12 months ending January 1, 1926, when 45 new associations were added. In addition to this the decided optimistic tone of the letters indicate a further gain by the time the directory of January 1, 1927, is issued.

The cow-testing association specialists in the various States are to be congratulated on the results obtained. Not only is there evidence of a large gain but it appears that the associations are meaning more to the members. The records of individual cows forwarded to this office are of higher quality than those received a few years ago. The average production per cow in spite of new associations and new members within the associations is steadily increasing. A tester who keeps complete and accurate records for his members is in a position to be of greater service to them than one who keeps incomplete and inaccurate records.

COW TESTING ASSOCIATIONS
LIGHT THE WAY TO MOST EFFICIENT PRODUCTION

BUREAU OF
DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Cow Testing Association Letter Volume 2, Number 10

November, 1926.

RARY OF THE
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PROPOSED PROGRAM FOR HERD AND ASSOCIATION SUMMARIES AND TABULATIONS FOR THE COMING YEAR.

During the past year the Bureau of Dairy Industry has furnished each State with the herd and association summaries of each of its cow-testing associations for which records have been received. This work has been kept up to date, or nearly so, throughout the year. Several other tabulations of these records have also been made from time to time and sent to the State from which the records came. Some States are now asking that these additional summaries be made to include all their records tabulated during the past year. It is, therefore, proposed to continue the herd and association summaries in the future as in the past but to make up sets of the other tables only once a year, covering yearly periods. It has been suggested that these tabulations include all records received during a 12-month period and that the tables be prepared in the late summer or early fall. If this is done the tables will be available for use by State dairy extension men in their winter campaigns almost as soon as the cow-testing associations have completed their year's work. It may be, however, that some of the States would prefer to have their tabulations made up at some other time of year. We shall be pleased to hear from the States regarding this.

COW TESTING ASSOCIATIONS AS DEMONSTRATIONS.

It is near the end of another year. In what ways have the cow-testing associations served as real demonstrations in their communities during the past year? The following report from New Jersey shows how a successful educational feature was demonstrated by two cow-testing associations of Burlington County under the constructive guidance of the county agent.

Over 100 head of dairy cattle were exhibited at a show held September 3 at the Tallman farm near Columbus, N. J. The attendance at this show was over 1500, and the program and exhibits were illustrated by an attractive catalog of 60 pages.

The talks, as well as the exhibits, were centered around cow-testing association work. An interesting feature of the exhibit was the Get-Of-Sire class, showing a proved dairy sire together with some of his daughters.

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Cow-testing association exhibits at fairs have been used to demonstrate to nonmembers some of the fundamental principles of cow-testing association work. In the October letter from Iowa a tester describes such an exhibit as follows:

"Know Your Cows."

"The point stressed in the 1926 Kossuth #1 C. T. A. exhibit was 'Know Your Cows.' To show that a cow's production cannot be told by looking at her, 6 cows were used, chosen from herds in pairs, one pair from each herd.

"Following are their records and conditions under which they were made:

Breed	Date Freshened	Milk Pounds	B. F. Pounds	Value of Product	Feed Cost	Income Above Feed Cost	Returns for $1 spent for feed
Jersey	Sept. 8 1925	7874	362.7	$179.46	$89.68	$89.78	$2.00
Jersey	Sept. 5 1925	3257	179.7	90.92	65.60	24.32	1.38
Guernsey	Apr. 15 1926	7538	423.9	206.91	91.28	125.63	2.26
Guernsey	March 26 1926	5060	247.5	108.26	76.08	42.18	1.42
Holstein	Oct. 27 1925	6809	230.2	116.70	81.58	35.12	1.43
Holstein	Nov. 21 1925	13272	430.3	210.62	90.44	120.18	2.33

"The cows in each pair were of good type and of very nearly the same weight. In connection with the exhibit, a guessing contest of the production of the cows was held. Prizes were given to the two persons who made the best guesses of the records of the cows."

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A study of cow-testing association records by the California extension men, to show the value of continued testing, reveals the following:

"Does One Year's Record Tell the Whole Story?"

"A great many men discontinue testing at the end of one year on the theory that only one year of testing is necessary to give them the record of their cows.

"To check the soundness of this theory a study was made of the records of herds completing their records this year. The herds were grouped into classes according to the length of time they had been tested. The first group consisted of herds that had been tested five years or more; the second group, of those that had been tested more than one year, but less than five; and a third group of those that had been tested one year only.

"The results of the study are as follows:

Years on Test	Number of Herds	No. cows in herds nine months or more	Average butterfat per cow Pounds	Average No. cows per herd
5 years or more	13	553	299.5	42.5
More than one and less than five years	13	287	276.4	22.7
One year	16	213	265.9	13.5

"The first group shows a substantial gain in butterfat over the other two groups in spite of the fact that it has the largest total number of cows and the largest number per herd.

"This group has an increase of 33.4 pounds of butterfat per cow over the third group, or a return of about $16.00 per year per cow increase."

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Cow Testing Associations

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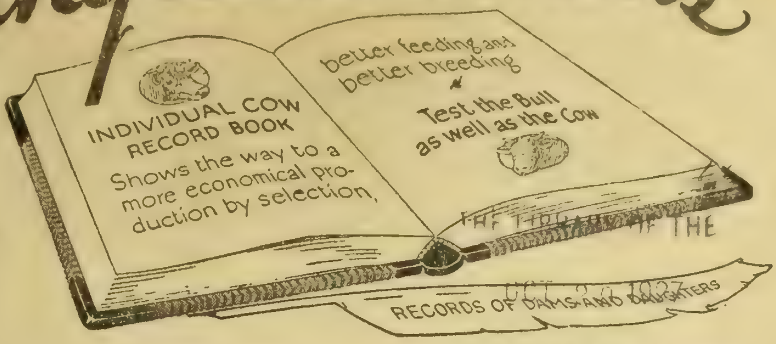
WASHINGTON, D.C.


INDIVIDUAL COW RECORD BOOK
Shows the way to a more economical production by selection.
better feeding and better breeding
Test the Bull as well as the Cow
RECORDS OF DAMS AND DAUGHTERS

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Cow-Testing Association Letter Volume 3, Number 2.

February, 1927.

SUMMARY OF COW-TESTING ASSOCIATIONS
in the United States
Active January 1, 1927.

Economical production of milk is an important factor in profitable dairying. Cow-testing association records are showing the way to such economical production. Continued practice of close selection, coupled with better feeding and management, will raise the average production of our dairy cows with a corresponding increase in the economy of that production.

Still greater improvement may be made by paying close attention to the quality of the herd sire. Selection of the bull is perhaps the most important factor to be considered in the development of a high-producing, economical dairy herd. Cow-testing association records may be used to measure the influence of the herd sire. Data from these records so far tabulated show that about one-third of the purebred sires are lowering the production of their daughters in comparison with the production of the dams of those daughters; about one-third are raising the production slightly; but the great increases are coming from only about one-third of the purebred sires in use. The higher the production of the herd the more difficult it is to raise production through the sire and the greater the need for using a bull of proven ability.

OFFICIALS IN CHARGE OF COW-TESTING ASSOCIATIONS IN THE STATES

ALABAMA........F.W. Burns, Extension Service, College of Agriculture, Auburn.
ARIZONA........R.N. Davis, Extension Service, College of Agriculture, Tucson.
ARKANSAS.......W.H. Woodley, Extension Service, College of Agriculture, Fayeteville.

CALIFORNIA.....G.E. Gordon, Extension Service, College of Agriculture, Berkeley.
COLORADO.......W.H. Gunther, c/o State Dairy Commissioner, Fort Collins.
CONNECTICUT....A.R. Merrill, Extension Service, Connecticut Agricultural College,
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DELAWARE.......C.A. McCue, Director of Extension, School of Agriculture, Newark.

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IOWA..........Burton Oderkirk, Agri. Ext., Iowa State College of Agriculture, Ames.
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MAINE..........R.F. Talbot, Extension Service, College of Agriculture, Orono.
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MICHIGAN.......A.C. Baltzer, Extension Service, Mich. Agri. College, East Lansing.
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MISSOURI.......M.J. Regan, Agri. Ext. Service, College of Agriculture, Columbia.
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NEVADA.........V.E. Scott, Agricultural Extension, College of Agriculture, Reno.
NEW HAMPSHIRE..G.L. Waugh, Extension Service, College of Agriculture, Durham.
NEW JERSEY.....E.J. Perry, Division of Extension, State College of Agriculture,
New Brunswick.

NEW YORK........G.W. Tailby, Jr., Extension Service, N.Y. State College of Agriculture, Ithaca.
NEW MEXICO......E.E. Anderson, Extension Service, N.M. College of Agriculture, State College.
NORTH CAROLINA..J.A. Arey, Ext. Ser., N.C. State College of Agriculture, State College Station, Raleigh.
NORTH DAKOTA....A.M. Challey, Agri. Ext., N.Dak.Agricultural College, Agricultural College.

OHIO............Ivan McKellip, Agri. Ext. Work, College of Agriculture, Columbus.
OKLAHOMA........J.W. Boehr, Extension Service, Okla. Agricultural College, Stillwater.
OREGON..........N.C. Jamison, Extension Service, Oregon Agricultural College, Corvallis.

PENNSYLVANIA....E.B. Fitts, Agricultural Extension, School of Agriculture, State Col.
C.R. Gearhart, " " " " " " "
I.O. Sidelmann, " " " " " " "

RHODE ISLAND....H.Burdick, Rhode Island State College, Kingston.

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TEXAS...........J.L. Thomas, Extension Service, A. & M. College of Texas, College Station.

UTAH............William Peterson, Director of Extension, Agricultural College of UTAH, Logan.

VERMONT.........E.H. Loveland, Extension Service, College of Agriculture, Burlington.
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Geo. H. Carey, Jr., " " " " " " "

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WISCONSIN.......A.J. Cramer, Agri. Ext. Service, College of Agriculture, Madison.
H.C. Searles, 150 S. Hickory Street Fond du Lac.
Erwin Sutton, Augusta.
Blaine Paulson, 818 Pine Street, LaCrosse.

WYOMING.........D.J. Robertson, Agri. Ext., College of Agriculture, Laramie.

There are several interesting changes in the cow-testing association line-up this year.

Wisconsin still has the largest number of associations followed by Michigan, Minnesota, Iowa, and Pennsylvania, in the order named.

The honor of having the largest number of cows on test in these associations also goes to Wisconsin. This State has had this distinction for a number of years. California with an increase of 11,008 cows on test is rapidly reducing this lead. California is the second State in number of cows on test, with Iowa third, Minnesota fourth, and Michigan fifth.

For the United States as a whole, the number of associations has increased from 777 to 837 in one year. This is a gain of 7.7 per cent. The number of members has increased from 19,540 to 21,128, a gain of 8.1 per cent. The number of cows on test has increased from 327,653 to 362,014, a gain of 10.5 per cent.

We are pleased to welcome back into the list of States having active cow-testing associations the following: Kentucky with two associations; Louisiana, Alabama, Georgia, and Texas, with one each.

GROWTH OF COW-TESTING ASSOCIATIONS, 1906-1927

Up to and including 1923 data were collected on July 1. Beginning with 1924 reports are made by calendar years Last column gives data for January 1, 1927.

State	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27
Mich.	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0
New York			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36
Vermont				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77
California				1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30	35
Wisconsin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159
Nebraska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10
Colorado					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5
Pennsylvania					1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43	49
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28
Washington					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11
Maryland						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8
Illinois						4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30
Minnesota						3	7	10	9	11	22	26	23	21	19	23	37	55	88	84	85
New Hampshire						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2
Oregon						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9
Utah						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5
Massachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7
Virginia						2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18
Kansas								1	1	1	1	4	3	15	13	13	13	9	8	11	13
Indiana								2	2	3	7	9	7	10	5	10	5	10	17	25	31
Kentucky								1	1	0	1	1	0	0	5	5	2	3	2	0	2
Missouri									2	1	2	5	4	5	6	7	11	12	13	19	21
New Jersey									2	3	4	8	9	9	12	8	6	6	6	9	11
West Virginia									1	1	3	1	1	1	3	5	5	6	3	3	3
Connecticut									1	3	6	3	0	0	1	0	2	1	1	2	4
North Carolina									2	0	0	0	0	0	2	2	0	0	2	5	5
Louisiana									1	0	0	0	0	0	1	0	0	0	0	0	1
South Dakota									1	1	3	3	0	0	0	0	0	4	11	9	10
Nevada										1	0	1	0	0	0	1	1	4	3	1	3
Arizona											2	2	1	0	0	2	1	1	2	1	1
Rhode Island											2	2	0	0	4	4	4	3	0	0	0
Delaware											2	3	2	2	1	0	0	0	0	0	0
Idaho											2	1	1	4	5	6	4	8	8	8	9
Mississippi											1	0	0	0	0	3	2	1	1	2	0
Montana											1	2	0	0	0	0	0	2	4	3	7
Tennessee											1	8	4	6	3	3	4	2	2	2	2
New Mexico												1	0	0	0	1	1	1	0	1	1
Wyoming												1	0	1	0	0	0	0	1	0	0
Alabama													2	1	3	1	1	0	0	0	1
Georgia													1	0	0	0	0	0	0	0	1
North Dakota													1	1	1	2	6	8	5	3	6
Oklahoma														1	1	2	1	3	5	5	5
South Carolina														1	1	1	0	0	0	0	0
Texas														3	0	0	0	0	0	0	1
Arkansas															1	2	2	2	0	0	0
Total	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837

State	Number of asso'ns.	Number of herds	Number of cows	Average per ass'n.		Total dairy cows B.A.E. Ests.	Percentage of cows in test Ass'ns.
				Herds	Cows		
Alabama	1	15	940	15.0	940.0	350,000	0.3
Arizona	1	41	1,370	41.0	1,370.0	35,000	3.9
California	35	1,465	59,509	41.9	1,700.3	596,000	10.0
Colorado	5	88	1,379	17.6	275.8	224,000	0.6
Connecticut	4	53	1,182	13.2	295.5	110,000	1.1
Georgia	1	25	450	25.0	450.0	343,000	0.1
Idaho	9	367	4,277	40.8	475.2	170,000	2.5
Illinois	30	757	13,050	25.2	435.0	988,000	1.3
Indiana	31	780	10,209	25.2	329.3	645,000	1.6
Iowa	77	1,917	27,695	24.9	359.7	1,314,000	2.1
Kansas	13	325	5,021	25.0	386.2	715,000	0.7
Kentucky	2	52	800	26.0	400.0	464,000	0.2
Louisiana	1	10	569	10.0	569.0	210,000	0.3
Maryland	8	192	3,867	24.0	483.4	178,000	2.2
Massachusetts	7	159	3,003	22.7	429.0	138,000	2.2
Michigan	102	2,449	26,511	24.0	259.9	841,000	3.2
Minnesota	85	2,066	26,562	24.3	312.5	1,529,000	1.7
Missouri	21	485	6,347	23.1	326.0	827,000	0.8
Montana	7	144	2,364	20.6	337.7	188,000	1.3
Nebraska	10	246	3,542	24.6	354.2	613,000	0.6
Nevada	3	60	1,450	20.0	483.3	20,000	7.2
New Hampshire	2	26	507	13.0	253.5	78,000	0.6
New Jersey	11	268	5,550	24.4	504.5	119,000	4.7
New Mexico	1	24	542	24.0	542.0	64,000	0.8
New York	36	845	17,445	23.5	484.6	1,318,000	1.3
North Carolina	5	75	2,484	15.0	496.8	303,000	0.8
North Dakota	6	86	1,476	14.3	246.0	498,000	0.3
Ohio	28	616	8,463	22.0	302.2	926,000	0.9
Oklahoma	5	87	1,882	17.4	376.4	581,000	0.3
Oregon	9	357	6,713	39.7	745.9	214,000	3.1
Pennsylvania	49	1,225	18,293	25.0	373.3	845,000	2.2
South Dakota	10	218	3,128	21.8	312.8	534,000	0.6
Tennesee	2	35	1,125	17.5	562.5	425,000	0.3
Texas	1	26	326	26.0	326.0	973,000	#
Utah	5	231	2,650	46.2	530.0	89,000	3.0
Vermont	23	502	10,497	21.8	456.4	285,000	3.7
Virginia	18	353	9,563	19.6	531.3	326,000	2.9
Washington	11	239	5,451	21.7	495.5	264,000	2.1
West Virginia	3	25	425 *	8.3	141.7	207,000	0.2
Wisconsin	159	4,194	64,897	26.4	408.2	2,014,000	3.2
Total or average	837	21,128	362,014	25.2	432.5	20,561,000	1.8

*Estimated on last year's data
#less than 0.1 %

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Cow Testing Associations

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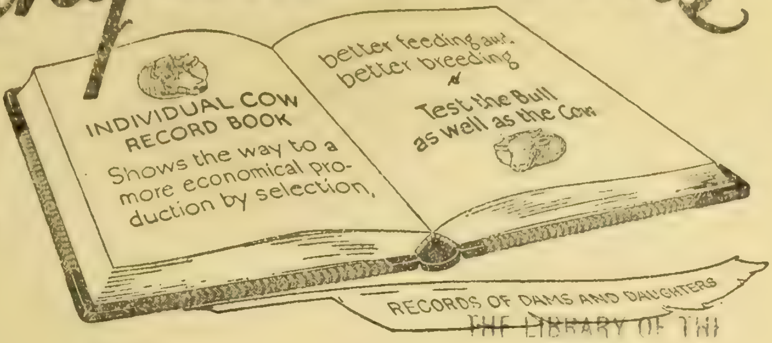

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Cow-Testing Association Letter Volume 3, Number 3.

March, 1927.

PROGRESS TOWARD UNIFORMITY IN TESTING METHODS

It is now two years since the preliminary draft of cow-testing rules was made by the cow-testing association committee of the American Dairy Science Association and less than 18 months since the rules were formally adopted by that association.

Questionnaires on these rules received from the States engaged in cow-testing association work show the progress that is being made toward uniformity in testing methods.

The States from which replies have been received contain 98.7 per cent of all the associations in the United States. All the rules adopted by the committee are in force in 40 per cent of these associations. The two rules that have not been generally adopted are the retest rule and the rule centering the testing day. With the exception of these two, the uniform rules are in effect in 90 per cent of the associations reporting.

PROGRESS IN PROVED DAIRY SIRE WORK.

At the present time, by means of cow-testing association records, 216 purebred sires have been proved by comparing the records of five or more daughters with the records of the dams of the daughters. Copies of these records have been furnished the State dairy specialists in the States where the sires are located.

The distribution of these 216 proved sires is shown below:

State	Number of proved sires
Wisconsin	74
Maryland	23
Iowa	14
Michigan	13
Illinois	11
Kansas	11
Ohio	9
Idaho	8
Vermont	8
Pennsylvania	7
Virginia	7
North Dakota	6
Minnesota	5
South Dakota	5
Mississippi	4
Indiana	3
Utah	2
Colorado	1
Missouri	1
Nebraska	1
New Mexico	1
New York	1
Oregon	1
Total	216

A large number of purebred sires have been partially proved by comparing the records of one or more daughters with the records of the dams of the daughters. A few more comparisons for each will bring them into the proved sire list. The names and numbers of these sires have also been furnished the dairy specialists. The distribution of these sires is shown on the following page:

State	Number of Sires	State	Number of Sires
Wisconsin	549	North Dakota	12
Michigan	467	Nebraska	11
Iowa	172	Pennsylvania	11
Minnesota	130	Maryland	8
Illinois	93	Oregon	7
Idaho	84	West Virginia	6
Kansas	69	Colorado	6
Virginia	50	Tennessee	6
Missouri	43	Utah	5
South Dakota	39	New York	4
Indiana	34	Georgia	3
Ohio	27	Arizona	2
Mississippi	23	Oklahoma	1
Montana	21	New Mexico	1
Vermont	21	Massachusetts	1
Total -			1906

As was stated in a previous letter, we are attempting this year to prove 1,000 bulls. If half of these 1906 sires could be proved this goal would almost be reached.

NEWS NOTES

Mr. A. C. Baltzer of Michigan reports that the Detroit Creamery Company of Mt. Clemens, which owns the largest private herd of cows in Michigan, has organized itself into a regular cow-testing association. It has placed on test its entire herd of 580 purebred and grade Holsteins. Mr. Barney, the tester, remains with the herd throughout the month and tests approximately 20 cows each day.

Mr. J. B. Parker of this Bureau has returned recently from the field where he visited some of the Southern States that are interested in cow-testing association work. This trip included South Carolina, Georgia, Alabama, Louisiana, Texas, Mississippi, Tennessee, and Virginia.

Mr. Parker reports that two of the largest associations now active in the South are operating successfully with approximately 1,000 cows each. These associations are located at Montgomery, Alabama and Shreveport, Louisiana. Each has been in operation less than a year, but the members have learned valuable lessons from the records. One of these lessons is better feeding practices, which has resulted in increased production of the cows.

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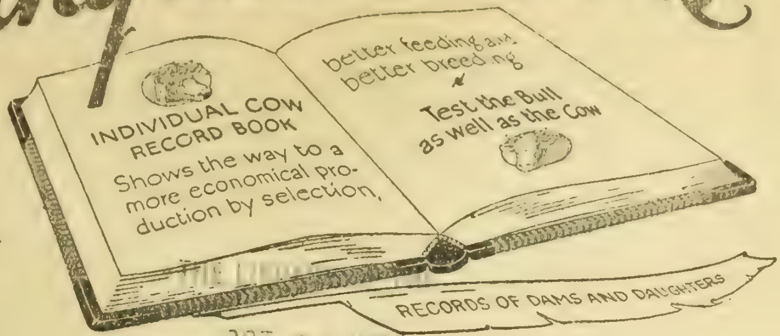
Cow Testing Associations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Cow-Testing Association Letter Volume 3, Number 4.

April, 1927.

STATE COW-TESTING ASSOCIATION SUMMARIES

It is always interesting to know how the States are "putting over" their cow-testing association work. The actual results are shown in their annual summaries.

Wisconsin reports an average gain of 279 pounds of butterfat in 1926 for the 40,015 cows on which data have been obtained and summarized.

Pennsylvania reports that the average production of the cow-testing association cows of that State in 1926 was 7,585 pounds of milk and 294.4 pounds of butterfat. This was an increase of 242 pounds of milk and 11.4 pounds of butterfat over the previous year. These figures are based on the reports from 41 associations in the State completing a full year's work. Mr. Sidelmann in transmitting this report states: "It is rather interesting to note how the 300-pound herds and also the 300-pound associations have grown during the past year. I believe we struck a 'lucky note' when we suggested to the farmers to try to reach the 300-pound goal."

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Texas has outlined the dairy development through the medium of cow-testing associations in the following manner:

Where the Cow-Testing Project Leads

- Cow Testing Project
  - Individual Profit or Loss Record
    - Keep Heifers from Best Cows for Future Herd
      - Breeding to Good Bulls
      - Bull Associations
      - Care of Heifers from Best Cows
    - Removal of Low Producers
      - Sell for Beef
  - Feeding According to Ability to Produce
    - Plenty of the Right Kind of Roughage
      - Tame Summer Pastures
      - Winter Pastures
      - Legumes for Pastures and Hay
      - Hay Crops
      - Soiling or Silage Crops
    - Balanced Roughage with Right Composition of Grain Mixture
      - Home Grown Grains
      - Mill Feed to Supplement Grains

HOW THE DAIRY SPECIALISTS CONSIDER THE COW-TESTING PROJECT

"Today the careful and far-seeing dairymen recognize that records constitute the basis for almost every phase of improvement of the herd and the raising of its efficiency. This is why members desire continuous records. They are lost without them as a guide to feeding, breeding, and weeding." (New Jersey)

"The assistance rendered by the dairy specialist to our cow-testing associations and the results obtained are probably more far-reaching and valuable in developing a profitable dairy industry in this State than any other piece of work carried on during the past year by the dairy extension men." (North Carolina.)

We consider that the cow-testing association is a major project "because through these associations and their testers we can best carry on extension work and secure the adoption of approved practices. The cow-testing association members as a rule are open-minded and ready to adopt the practices we recommend." (Missouri)

"No phase of dairy extension work has been so effective in teaching better dairy practices as the cow-testing associations." (Montana)

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Ireland reports 200 cow-testing associations in 1926 with 50,000 cows under test, an increase of 5,000 over the previous year. The cow-testing association cows averaged 4,500 pounds of milk per annum, whereas the average production for all the cows in the country was about 3,500 pounds of milk.

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The New Zealand Dairyman refers to the good and poor dairy sires as "The Plus and the Minus Herd Sires." This publication also makes the following statements: "A butterfat bull is a mortgage lifter," and "You cannot guess which is your best cow, you must prove it."

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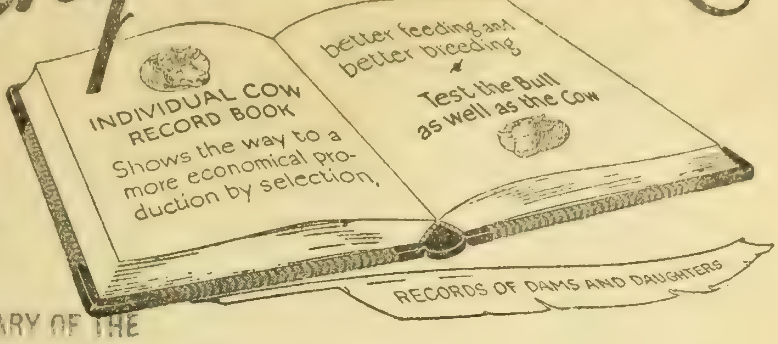
Cow Testing Associations



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Cow-Testing Association Letter Volume 3, Number 5.

May, 1927.

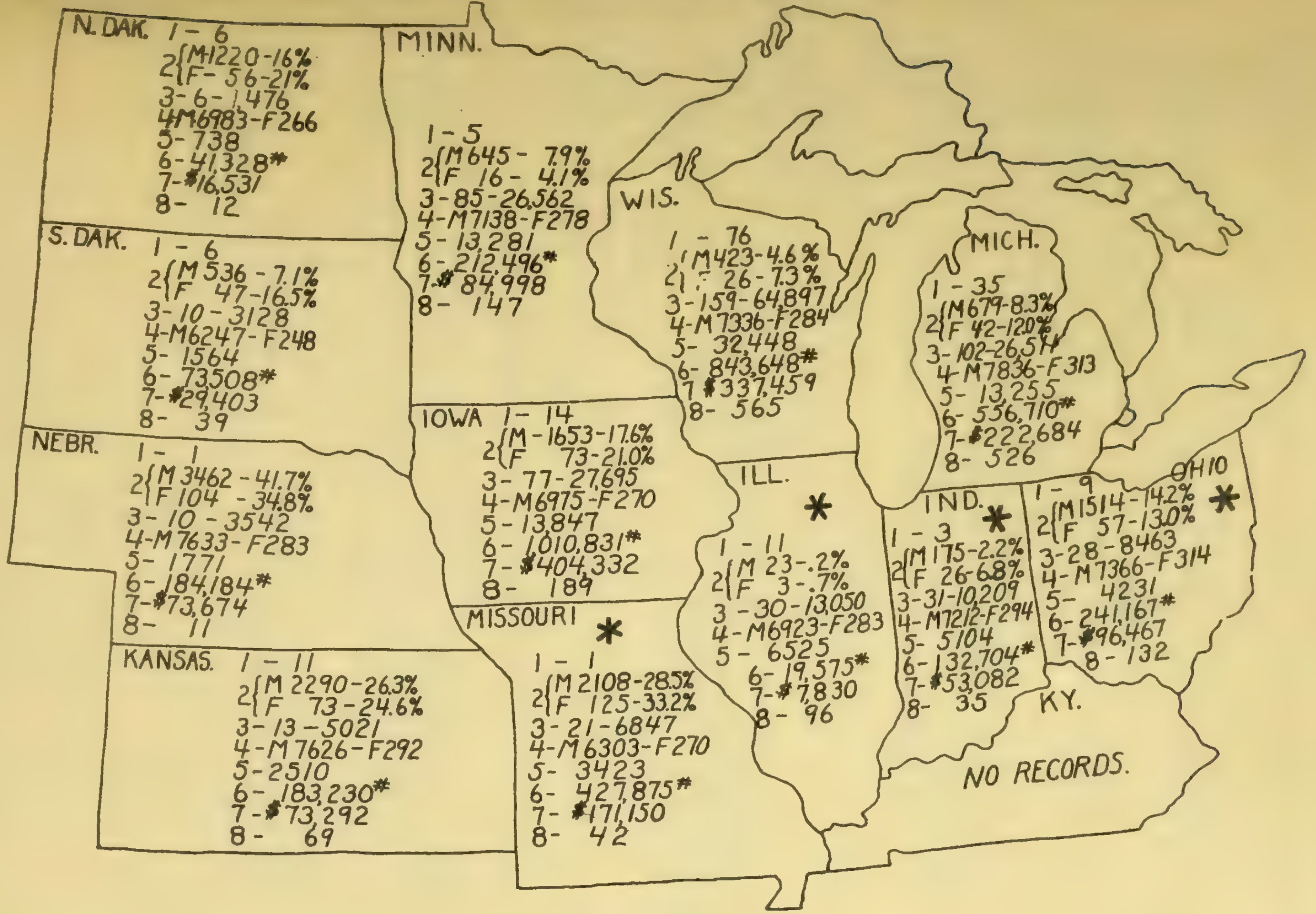
PROVED SIRE NUMBER

At the conference of dairy extension workers held in Madison, Wisconsin, May 10-13, the consensus of opinion was that the proved sire problem was one of outstanding importance. It was felt that the results of studies made by the Bureau of Dairy Industry on this subject would be useful in furthering the field work planned for the summer months. Some proved sire information obtained by this bureau is included in this letter. Detailed results of the studies on sires proved by means of cow-testing association records are being made. When this work is completed, results will be published.

Potential Effect of Proved Sires in 13 Middle-western States

The map on the following page gives the information derived from a study of the proved-sire records from the 13 States represented at the Madison conference. The figures for each State show the effect that sires of equal merit would have if used on all the cow-testing association cows in the State.

13 MIDDLE-WESTERN STATES



LEGEND —

1 - Number of proved bulls.
2 - Increase of daughters of proved bulls over dams in milk and butterfat.
3 - Number of Cow Testing Associations and cows on test.
4 - Average production of Cow Testing Association cows.
5 - If all C.T.A. cows were bred to proved bulls of this quality and half of offspring were heifers — Estimated Number.
6 - Estimated No. of heifers times average fat increase of daughters of proved bulls = No. of pounds butterfat increase yearly.
7 - Value of this butterfat increase at 40¢ per pound.
8 - Number of partially proved bulls (1-4 daughters).

*NOTE:- DECREASE FOR MO., ILL., IND., OHIO — AT 2, 6, 7.

Comments from Owners Concerning Proved Bulls.

1. This bull was butchered a year ago before returns of testing were received.
2. Is this bull still alive? No. One of the best bulls I ever owned.
3. Sold for beef. If we had been in testing association at that time this bull might still be alive.
4. Not many people will buy an aged bull.
5. Yes. This sire will be kept in service here as long as possible.
6. Disposed of because he was homely.
7. His calves were nearly all bulls.
8. He accidently killed his keeper and was then sold for beef.
9. Sold to butcher at age of 6 because breeders were afraid of his age.
10. This bull was owned in partnership by four dairymen. The partnership was dissolved, a condition which necessitated the disposal of the bull.
11. Sold him because he would not breed.
12. Killed on account of lumpy jaw.
13. Sold because he reacted.
14. Will say that I made a great mistake in sending him to the block as his daughters developed wonderfully after they were three years old.
15. This was a great bull. At least he got some mighty good producing daughters but they were not so very typy. So he was sold to the butcher.
16. I have often regretted that he went for beef.
17. We found out after he was sold for beef that he was an outstanding bull.

Length of Service in Last Owners' Herd

A questionnaire has been sent by this bureau to the last recorded owners of the sires proved through cow-testing association records for the purpose of obtaining information on the length of time these bulls have been in their herds. Returns from 129 owners show the following:

Length of service before disposal	No. of bulls	Length of service before disposal	No. of bulls
Years		Years	
1	4	7	10
2	22	8	3
3	30	9	2
4	27	10	0
5	16	11	2
6	12	12	1

We are greatly pleased with the large number of replies coming in from the States giving information concerning proved bulls. At the present time 263 bulls have been proved, and completed information blanks on 182 sires have already been returned to this office.

Even the Vicious Bull is Wanted If Proved

The following is a copy of a letter recently received.

"I am inclosing an information blank of the proved sire ________________ filled in. As is usually the case, your silver medal bull is dead because he was hard to control.

"By the way, I am in the market for a purebred, Advanced Registry Guernsey Bull. The worse he is and the bigger fighter the better I'll like him. If you come across a fighter that has daughters in milk exceeding their dams, please write me immediately, before he gets killed.

Yours very truly,

Information Frequently Missing from Strips

Lack of complete data on each dam and daughter strip sent to this office by the States may mean that information is insufficient to prove a sire. Testers often neglect to obtain complete enough data to make safe comparisons. Some of the reasons why strips are returned to the States for additional information are given below.

1. Daughter's and dam's ages not given.

This information is necessary in order that their records may be figured to maturity in case the animals are not mature.

2. Sire's registration number missing.

The records of the sires are kept in the order of their registration numbers. The registration numbers are also used in looking up information regarding the sires.

3. Legibility.

Needs no comment.

4. Dam's "Months in milk" missing.

"Months in milk" should be given for both dam and daughter, because it is not fair to make comparisons if one is in milk a much shorter time than the other.

5. Breed of sire and dam.

Animals are classified by this bureau according to breed.

6. "Months on test" missing.

In making dam and daughter comparisons only 12-month records are used. If months on test are not given, there is no way of knowing which are 12-month records.

What is a Proved Sire Worth?

The Idaho cow-testing letter for April contains an article showing the value of proved sires as located in that State. An excerpt from this article follows:

"Eight proved sires still alive and in service in Idaho today are valued at $500.00 or more apiece by their owners and could probably be sold at that figure if their owners would accept that price; in fact, three have sold for $500.00 or more. Why are these eight and nine-year-old bulls worth this high price? Because their daughters are producing from 50 to 125 pounds of butterfat a year more than their dams and because the daughters are better type cows than their dams. Since the owners of these proved sires feel sure that practically all the other daughters of these bulls will produce more than their dams, they know that they are improving their dairy herd when they use a proved sire.

"Two or three years ago before records of the daughters and dams were available, these bulls were an unknown quantity. Since their value was not proved, their cash value was about beef price, but as soon as their daughters were proved to be higher producers, than their dams, the value of the bulls was greatly increased.

"Why do we not have more proved sires? Because too many bulls are butchered before the daughters freshen and before records of the daughters and their dams are secured. One method of securing a large number of proved sires in Idaho is to exchange bulls instead of butchering them. If bulls are exchanged and kept in service until their daughters are tested, there will be many more valuable bulls in Idaho-bulls whose daughters are higher producers and of better type than their dams.

"This office will be glad to keep on file a list of bulls, three years old or older, for exchange. Any dairyman who has used a bull as long as is practicable on his own herd and desires to exchange him for another bull of equal breeding, may list him with this office by filling out and returning the attached blank form."

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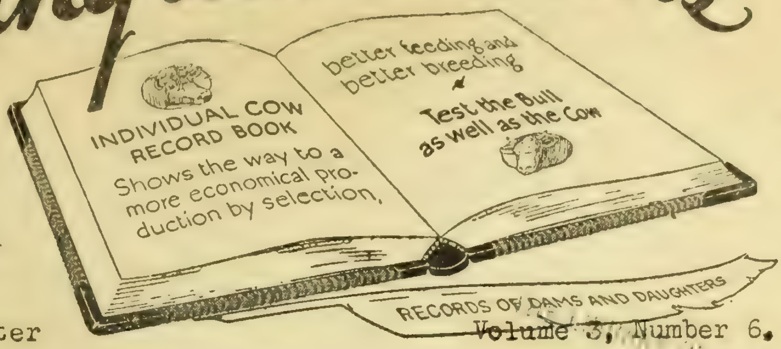
Cow Testing Associations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Cow-Testing Association Letter Volume 3, Number 6.

June, 1927.

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THE HALFWAY MARK

This issue marks the end of the first half of 1927. What have been the accomplishments of the testing work during this time? We already have two ways for measuring these.

(1) Number of associations and herds. Blanks for estimating the supplies needed have been sent to each State using the Bureau of Dairy Industry forms. These blanks when returned give the number of associations active during June. The returns already received show a gain of 50 associations in 23 States. If the other States now have the same number of associations as they had on January 1, 1927, there would be approximately 887 associations in the United States for June, as compared with 837 on January 1, 1927.

(2) Production of milk and butterfat per cow. A master card which is used in the new tabulating machinery has been developed by the bureau. On this card cow-testing association totals are punched. By this method one card represents the totals for a whole association. This system facilitates keeping the production information up-to-date. Of course, we have not as yet received a great proportion of records for associations ending their year's work in 1927. The returns which have been received, however, show a favorable gain over that of previous years, as can be seen from the following table:

Cow-Testing-Association Records Summarized

Year	No. of Ass'ns.	Cow years	Milk production pounds	Butterfat production pounds
Prior to 1920	120	21,234.00	6,077	248
1924	105	25,849.91	7,060	279
1925	371	96,102.25	7,257	286
1926	409	108,312.17	7,322	288
1927	62	17,057.25	7,597	296

— With such accomplishments as stated above for the first half, what are to be the goals for the remainder of the year? Let us keep up the good work so that a further gain can be shown by January 1, 1928.

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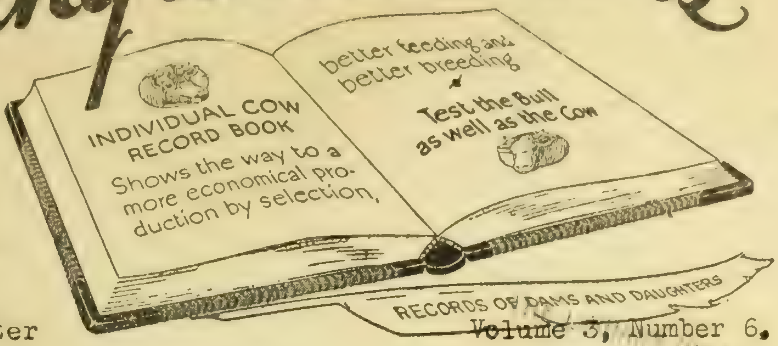
Cow Testing Associations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— With such accomplishments as stated above for the first half, what are to be the goals for the remainder of the year? Let us keep up the good work so that a further gain can be shown by January 1, 1928.

LET THE HERD SIRE PAY TESTING COSTS

In the May issue of this letter a map was shown picturing the effect that the proved bulls in the Middlewestern States would have if mated with all the cows in cow-testing associations. Figures show that the use of these bulls would result in a gain greater than the entire cost of testing, including all supervision costs in that section of the country.

A similar comparison can be made from a study of the 5,217 dam and daughter records received from all the States. On an average the sires mated with the dams increased the milk production of the daughters 340 pounds and the butterfat production 18 pounds. If purebred sires were mated with all tested cows and if half their offspring were heifers, the gain at 40 cents per pound butterfat would be over one and one-fourth million dollars. This would pay all testing costs, including dues of the members, forms, tabulating records, and supervision by specialists and county agents. Proper selection of the sires on the basis of performance and elimination of undesirable sires will do even more than that. The bulls as well as the cows should be tested, if the greatest good from herd improvement work is to be derived.

COOPERATION AN AID IN PROVED-SIRE WORK

The dairy specialists are still working out plans for extending the usefulness of proved sires. The following report has been received from Idaho:

"The only real tests of a bull are the type and production of his offspring. Yet very few bulls are kept in service until their daughters have freshened. Many dairymen would much prefer to use a proved sire, and the number of such men is increasing. Most of them feel, however, that it is impossible to prove their own bulls. A questionnaire has been sent to every cow-testing association member in Idaho to help to get together men who want to use proved sires cooperatively."

ILLINOIS TRIES STATE-TESTER CONFERENCE

Another State has tried the State-tester conference plan as a means of making the work more effective. Judging from the comments of the testers and the personal observations of Mr. Parker, who attended this conference, it proved a success.

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Cow Testing Associations

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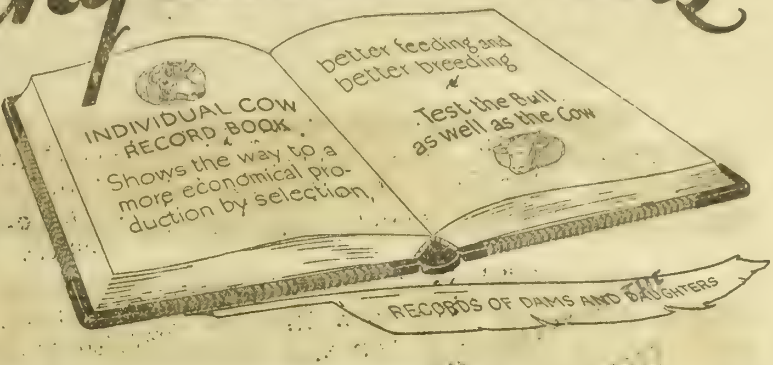
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Cow-Testing Association Letter Vol. 3, No. 7

July, 1927.

Change of Name - A Forward Step

Information has been received from Mr. A. C. Baltzer, Chairman of the Cow-Testing Association Committee of the American Dairy Science Association that that organization has gone on record as approving a change in name - from Cow-Testing Associations to Dairy-Herd Improvement Associations. It is felt that this is a forward step for the reason that the previous name was confusing and not descriptive of the work now accomplished by these organizations. Dairy-herd improvement is really the goal and through the lessons taught by the records dairy-herd improvement can be accomplished.

First Cow-Testing Association Still Active

A report from Michigan shows that the Newago Cow-Testing Association, the first in this country, is still active. It also gives some interesting comparisons between its first year and 1926 - its 16th year:

"The Old Newago Cow-Testing Association has closed the 16th year of testing work and the tester reports that the 292 cows under test during 1926 averaged 7,304 pounds milk and 326 pounds of butterfat.

"Several interesting comparisons between the first year of the testing association and the year just finished show progress. In 1906 the results obtained at the conclusion of the testing year show that the average production on 239 cows was 5,336 pounds milk and 215 pounds butterfat. Twenty years later, with 16 years of testing work completed, show that 292 cows have averaged 7,304 pounds milk and 326 pounds butterfat. None of the herds under test in 1906 averaged 300 pounds butterfat production. Out of 28 herds under test in 1926, 22 herds averaged above 300 pounds butterfat. The average production for these 22 herds was 7,643 pounds milk and 359.7 pounds butterfat.

"However, the high herd in butterfat production composed of nine purebred and grade Jerseys averaged 5,702 pounds milk and 270 pounds butterfat. The high herd in 1926 consisted of 6.25 purebred Jersey cows and averaged 9,249 pounds milk and 439 pounds butterfat.

"No association in the United States has been testing for a longer period of time than the Old Newaygo and these dairymen are exerting an influence for the improvement of the dairy industry in Newaygo County."

A New Record

One hundred and ten record strips on which the tester had complete dam, daughter and sire information were recently received from the Fort Atkinson, Wisconsin, Cow-Testing Association. This constitutes a record for volume of information received from a single association. These strips were used to prove the ability of eight purebred sires. In addition 30 other sires were represented by from one to four dam and daughter comparisons. That such data are available in a large number of associations and herds has been known, but it remained for this tester to prove it. He deserves a lot of credit for locating this information What one tester can do others can likewise do. Perhaps some of these sires, are lost to the dairy world but the story told by the records of their daughters will not be lost to the herd owners.

Why Publicity?

Under the heading "Telling Tips for Testers" the extension editor at the University of Illinois lists the reasons for tester publicity as follows:

"Do something - then tell about it! This is the rule for publicity which applies to cow testers and to everyone else.

"The 'do something' half of the rule has been, is and will be taken care of in the regular run of tester's work. His month is a full one and the services he renders to the dairy industry and to agriculture are many.

"But why tell about it?, someone asks. There are at least a half-dozen reasons:

"1. Because the service the tester is rendering and the better-dairying facts which are a part of his stock in trade won't speak for themselves, contrary to what he has been told.

"2. Because the interest of prospective new members in the work of dairy herd improvement associations can be kindled by telling them how present members are profiting by the work.

"3. Because the support of present members can be kept lined up by keeping before them the accomplishments of the association and the benefits which it is bringing to the dairy industry of the community.

"4. Because the scope of the tester's work can be extended many times by pointing out to all the farmers of the community how some dairymen or farmer profited through membership in the association. Thus the non-member concludes that what his neighbor has done he can do, he tries out some improved dairying practices, works up an appetite for more information and ends up by joining the association.

"5. Because telling about your work will help to correct wrong impressions. It has been suggested that as a matter of policy, men in public service should avoid replying to attacks, because such replies magnify attacks. Rather they should always keep burning a counter-fire on what they have done, are doing and propose to do, in order to meet the attack that is bound to come, and will come, unless frequent and clear statements are made.

"6. There is a sixth reason that should not be omitted, although there are many others that could be stated. Making acceptable contributions to the local or state press will clarify the tester's ideas, lead him to think along logical, connected lines, enlarge his vocabulary, teach him precision in the use of terms, and frequently force him to fill in certain gaps in his knowledge, or experience before he can give comprehensive treatment to a theme."

News Notes.

In the June Letter the statement was made that reports from the various States showed an increase of 50 associations in 23 States. Since that time practically all the remaining States have been heard from. They show a much greater gain than was anticipated. These 37 States covering over 94% of the associations in the country indicate that there are over 900 active associations when the remaining States are credited with the same number reported active January 1, 1927.

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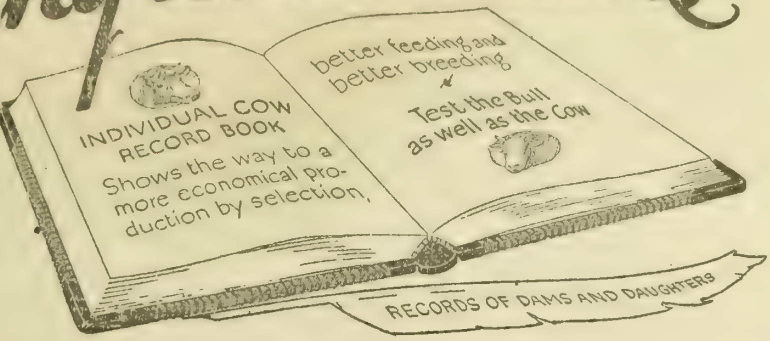
Cow Testing Associations



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Dairy-Herd-Improvement-Association Letter Volume 3, Number 9

October, 1927.

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A NEW REPORT BLANK

The individual cow-record tabulation strip is to be replaced by a form that it is believed will prove of value both to the testers and to the State dairy specialists. For some time it has been felt that if the work of the testers in making out report forms at the end of the testing year could be simplified it would result in a greater number of records and records more completely filled out.

The new form is a long sheet, folded and bound inside the back cover of the herd record book. It is perforated along the binding edge to permit its removal at the end of the testing year. Space is provided on each sheet for the records of 20 cows, and the same information is requested as that on the tabulation strips.

The headings on the sheet ask for information concerning the association, herd owner, his address, testing period of the cows, sires represented in the herd, and names of the various feeds used. This information, which applies to each cow in the herd, needs to be entered only once for each group of 20 cows, whereas formerly it had to be entered on each cow strip.

In the new form data on milk and butterfat production, feed consumption, feed costs, and income over feed cost are the same as the data in the herd record book. The sire and dam information has been condensed. Columns are provided for entering the name and number of the dam, her age when tested, breed, months in milk and months on test. At the top of the page the full information for the sire is given. Only one column, therefore, is provided for the sire, and in this space the tester should enter the registry number.

A separate supply of these forms will be provided to be used with the present herd books. This will obviate the necessity of using strips until the new herd books come into use. As sson as these are available, supplies will be sent to each State using the forms of the bureau in their dairy-herd-improvement-association work.

In addition to saving the tester's time, several other benefits will result from the use of these forms. At the present time the testers must carry the strips from herd to herd at the end of the association year. Since the new report forms will be in the back of the herdbooks, they will always be available for the tester to enter certain items at any time during the year. The strips for cows of one herd often become mixed with those of other herds. This requires frequent sorting. In using the new forms the records for the cows of each herd will always be together. At the present time a heavy, bulky parcel-post package is required in forwarding the strips for one association from one office to another. With the use of the new forms, a manila envelope will accommodate the records of an entire association.

ADDITIONS AND CHANGES IN HERD RECORD BOOK

At the suggestion of the dairy-herd-improvement association committee of the American Dairy Science Association, the herd record books have been improved by the addition of four pages. One page gives the service record of the herd sire, another is the gestation table, and two pages are pedigree blanks for the herd sire. In addition space has been provided at the bottom of the individual cow record page for the yearly summary and previous records of each cow. The column for milk and butterfat has been widened to make it possible to enter these items without crowding.

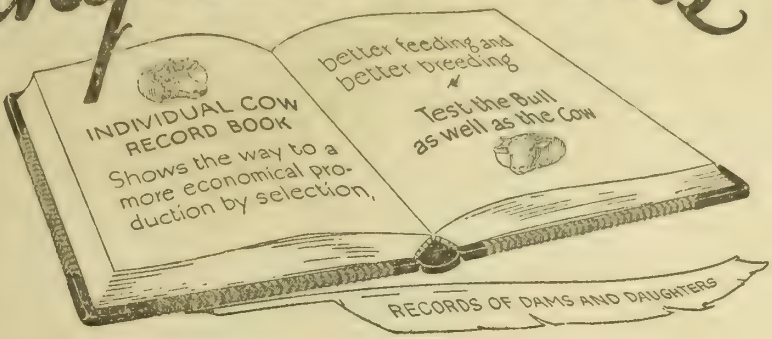
NEWS NOTES

Mr. J. B. Parker, who has returned to the office from a trip to a number of the Western States, reports a steady increase in dairy-herd-improvement association work. Some intensive work is being done in several of the States in that section in locating proved sires and extending their usefulness.

Utah reports that in Cache County 18 per cent of the dairy cows are in dairy-herd-improvement associations. California reports that in at least five counties over 20 per cent of their dairy cows are in herd-improvement associations. These reports promise well for the future of these dairy sections.

Cow Testing Associations

BUREAU OF
DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.



INDIVIDUAL COW RECORD BOOK
Shows the way to a more economical production by selection,
better feeding and better breeding
Test the Bull as well as the Cow
RECORDS OF DAMS AND DAUGHTERS

Dairy-Herd-Improvement Association Letter Vol.3, No. 10.

November, 1927.

COMPARISON OF BUTTERFAT-PRODUCTION RECORDS OF HERDS IN DAIRY-HERD-IMPROVEMENT ASSOCIATIONS (1924-25 and 1925-26)

- - - - -

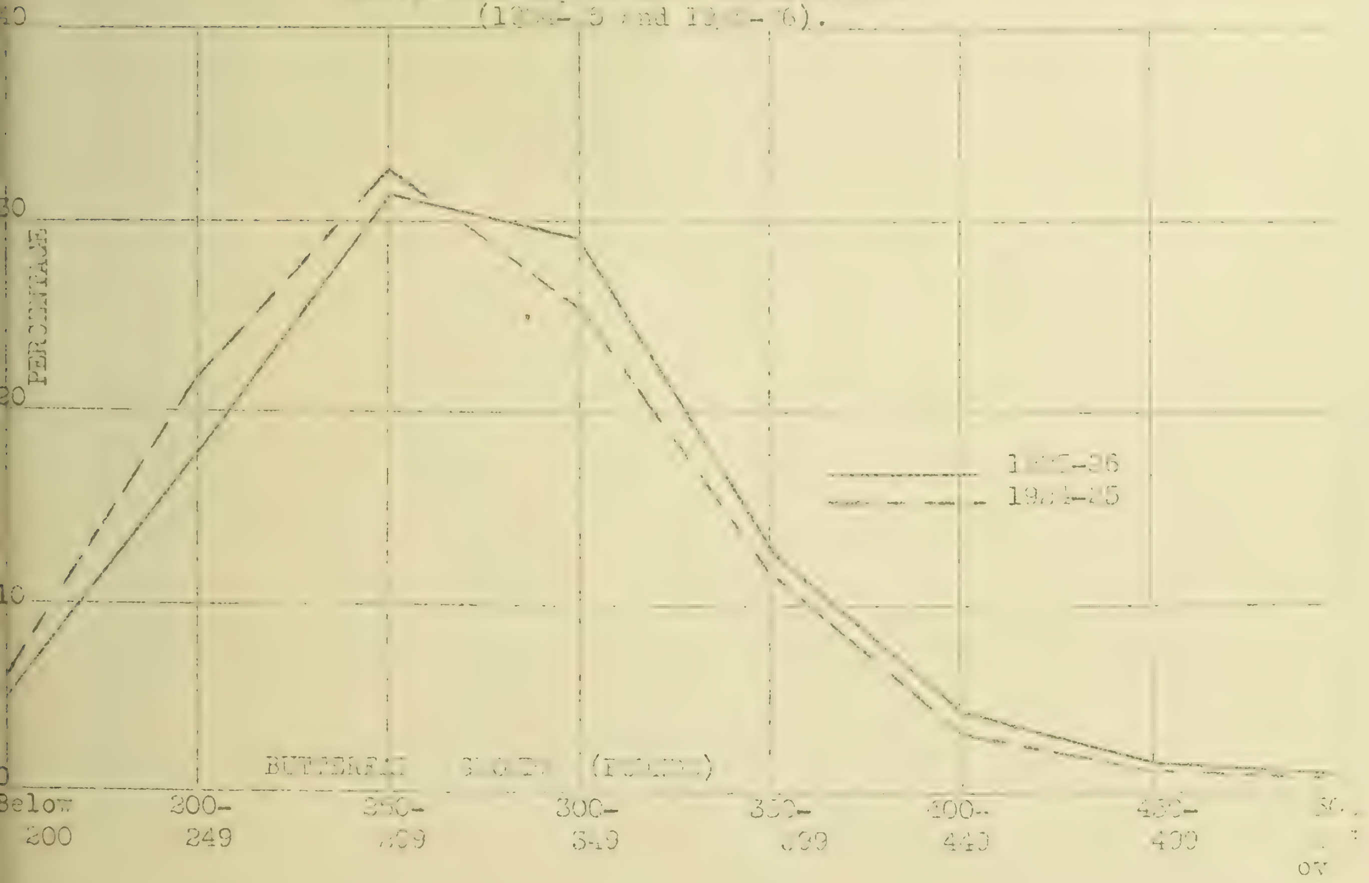
In the following table records of dairy-herd-improvement-association herds, grouped according to average yearly butterfat production per cow, are compared for the years 1924-25 and 1925-26. In 1924-25 the study included 5,030 herds, and in 1925-26 it included 10,241 herds.

Comparison of Records of Herds grouped according to
Butterfat Production
(1924-25 and 1925-26).

	1924-25		1925-26		
Butterfat production per cow. Pounds.	No. of herds.	Per cent of all the herds.	No. of herds.	Per cent of all the herds.	Gain or loss 1925-26 compared with 1924-25. Per cent.
199 and less	307	6.1	552	5.4	-0.7
200 - 249	1,080	21.5	1,803	17.6	-3.9
250 - 299	1,631	32.4	3,191	31.2	-1.2
300 - 349	1,261	25.1	2,931	28.6	+3.5
350 - 399	562	11.2	1,244	12.1	+0.9
400 - 449	140	2.8	406	4.0	+1.2
450 - 499	41	0.8	90	0.9	+0.1
500 and over	8	0.1	24	0.2	+0.1
Totals	5,030	100.0	10,241	100.0	

The table shows that in 1935-36 the percentage of herds in each group with a butterfat production of less than 300 pounds per cow was not so great as that in 1924-25. In each group with more than 300 pounds of butterfat per cow, however, the percentage in 1935-36 exceeded that in 1924-25. Only 40 per cent of the 1924-25 herds averaged more than 300 pounds of butterfat per cow, whereas [illegible] per cent of the 1935-36 herds averaged more than 300 pounds.

Comparison of Average Yearly Butterfat Production Per Cow in Dairy-Herd-Improvement Associations (1924-25 and 1935-36).



The graph shown above compares the average butterfat production per cow of herds in Dairy-Herd-improvement associations in 1924-25 with the herds in these associations in 1935-36. The data for this graph are taken from the per cent columns in the preceding table.

[illegible] OF HERD SIRES

After a dairyman has replaced a herd sire whose daughters produced 3,693 pounds of milk and 168.7 pounds of butterfat a year less than their dams by one whose daughters exceeded their dams by 4,692 pounds of milk and 147.1 pounds of butterfat a year, he must experience a feeling of satisfaction in having accomplished something worth while.

This was the experience of a member of a dairy-herd-improvement association in Wisconsin. To illustrate the value of the proved dairy sire, the records of these two bulls, as shown in the following table, were used in an exhibit at the Jefferson County, Wisconsin, fair. At least, the owner of these bulls should now be convinced as to the value of possessing a proved sire that can transmit high production. It is hard to understand why other dairymen viewing this exhibit should not be convinced also.

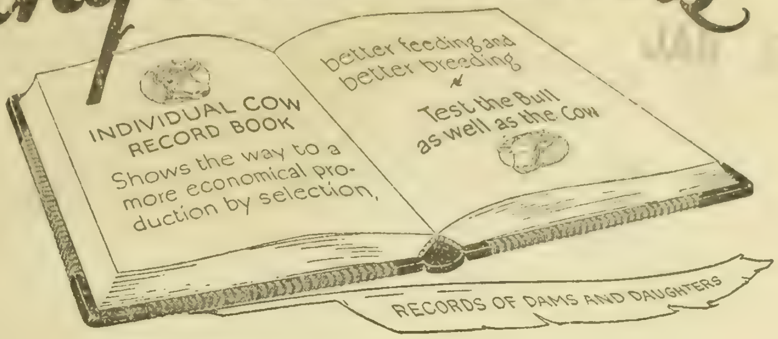
Records of Two Sires Used in One Herd.

Herd Sire No. 1.				Herd Sire No. 2.			
Dams		Daughters		Dams		Daughters	
Milk	Butter-fat.	Milk	Butter-fat.	Milk	Butter-fat.	Milk	Butter-fat.
Pounds		Pounds		Pounds		Pounds	
13,564	457.6	10,549	299.6	15,105	477.1	19,113	672.3
17,639	629.7	10,636	329.5	15,715	435.4	18,103	380.3
16,859	574.8	9,131	295.2	[illegible]	327.4	13,661	470.4
9,864	378.2	11,730	414.3	5,788	166.0	14,710	484.4
13,078	430.0	12,004	355.8	5,834	210.3	10,626	360.3
11,684	431.6	6.506	195.1	7,011	234.7	11,257	335.9
Average							
13,781	483.6	10,088	314.9	9,836	303.5	14,578	450.6

	Milk	Butterfat		Milk	Butterfat
Average decrease of daughters, pounds.	3,693	168.7	Average increase of daughters, pounds	4,692	147.1

To show how this information was obtained a full set of dairy-herd-improvement-association forms, from the barn book to the tabulation strip, was on display at the Jefferson County fair.

Cow Testing Associations


INDIVIDUAL COW RECORD BOOK
Shows the way to a more economical production by selection.
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RECORDS OF DAMS AND DAUGHTERS

BUREAU OF
DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Dairy-Herd-Improvement Association Letter Volume 3, Number 11.

December, 1927.

COMPARISON OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS GROUPED ACCORDING TO AVERAGE BUTTERFAT PRODUCTION PER COW (1924-25 and 1925-26)

In the dairy-herd-improvement association letter of last month a table was given showing the comparisons, for 1924-25 and 1925-26, of herds grouped according to butterfat production per cow. The following table gives a similar study of the associations themselves.

Comparison of records of dairy-herd-improvement associations grouped according to average butterfat production per cow.

	1924-25		1925-26	
B'fat production per cow	Number of ass'ns.	Percentage of all ass'ns.	Number of ass'ns.	Percentage of all ass'ns.
Below 200	2	0.5	1	0.2
200 - 249	49	12.9	36	7.7
250 - 299	210	55.3	238	51.1
300 - 349	114	30.0	178	38.2
350 - 400	5	1.3	12	2.6
400 and over	-	-	1	0.2
Totals	380	100.0	466	100.0

The above table shows that in 1924-25 31.3 per cent of the associations had an average butterfat production per cow of 300 pounds or over. By 1925-26 the percentage had increased to 41.0.

The 1926-27 records from dairy-herd-improvement associations are rapidly coming in for summarization and study. It is planned to start the stock tabulations on April 1 of the coming year instead of on July 1, thereby making the results available three months earlier. To make these studies as comprehensive as possible, the cooperation of all dairy extension specialists is desired in having all available 1926-27 records sent in before March 30.

The Annual Inventory.

In order that its information may be kept up-to-date, the bureau has found it advisable to obtain data at least once a year concerning dairy-herd-improvement associations, testing circles, etc. Accordingly, blanks have been sent to each State for information concerning these organizations active on January 1, 1928.

This information should be returned as promptly as possible after January 1 in order that the summary of associations by States and for the United States can be issued at an early date.

Complete Association Records Needed.

From time to time emphasis has been laid on the need for complete information on the tabulation strips. This information included testing period, months in milk, months on test, age, weight, freshening date, etc. It is now necessary to call attention to the need for complete records of associations. The testers of some associations send records for only part of the herds and no records for some herds. In order that the studies made from the records may be of the greatest value, complete data are necessary for all herds as well as for all cows, as stated in the uniform rules of the American Dairy Science Association.

News Notes.

It is with regret that the bureau announces the resignation of its Chief, Dr. C. W. Larson. Dr. Larson is leaving the Department to become Director of the National Dairy Council in Chicago.

J. B. Parker, associate dairy husbandman, has recently returned from a field trip to several Middle Western States. In Wisconsin he attended a regional conference of testers at Menominee Falls. Fifteen testers from four counties, together with the county agents, were in attendance. This was the first conference of its kind held in Wisconsin, but it is hoped that it is the forerunner of similar meetings. This type of conference saves the supervisor's time and is very effective in developing and stimulating the tester personnel. Iowa, Michigan, New York, and several other States have been carrying on regular series of regional conferences with marked success.

DAIRY HERD IMPROVEMENT ASSOCIATIONS

THE KEY TO SUCCESSFUL DAIRYING

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd-Improvement Association Letter Vol. 4 No. 2

February, 1928.

#2-11 [illegible]

SUMMARY OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS AND TESTING CLUBS OR CIRCLES IN THE UNITED STATES ACTIVE JANUARY 1, 1928

(as reported by dairy specialists)

During the past year the gain in the number of dairy-herd-improvement associations was 13 per cent as compared with 8 per cent in 1926 and 6 per cent in 1925. These figures show that dairymen are realizing more and more the value of the dairy-herd-improvement association in increasing milk and butterfat production of their herds by application of business methods. The results accomplished by these associations is a striking testimony of their efficiency, as shown by the following table, which has been made from a study of the individual cow records received from the associations.

Results of Dairy-Herd-Improvement Associations.
Records tabulated by the Bureau of Dairy Industry.

Year	Association	Cow Years	Milk (lbs.)	Butterfat (lbs.)
Prior to 1920	120	37,362	5,989	247
1923-24	129	32,091	7,092	279
1924-25	380	98,704	7,189	284
1925-26	476	127,617	7,316	289
1926-27	426	116,908	7,410	295

GROWTH OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS, 1906-1928

Up to and including 1923 data were collected on July 1. Beginning with 1924 reports are made by calendar years. Last four columns give data for January 1.

State	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28
Mich.	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	103	102	105
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0
New York			1	1	3	9	18	21	29	35	47	43	19	25	20	24	31	27	24	23	36	42
Vermont				2	8	10	11	17	28	33	33	47	18	12	10	17	21	20	17	13	23	25
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86
California				1	3	2	4	4	5	7	9	15	16	14	15	21	21	27	20	30	35	32
Wisconsin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166
Nebraska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	[illegible]	10	17
Colorado					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	[illegible]	5	9
Pennsylvania					1	1	2	2	7	14	19	24	21	30	64	46	45	36	42	43	49	65
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29
Washington					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10
Maryland						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7
Illinois						4	3	2	7	3	3	17	15	27	23	25	24	23	24	23	30	34
Minnesota						3	7	10	9	11	22	20	23	21	19	23	37	55	68	84	85	105
New Hampshire						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	4
Oregon						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11
Utah						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5
Massachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9
Virginia						2	2	2	0	0	2	4	4	5	8	10	12	13	15	13	18	20
Kansas								1	1	1	1	4	3	15	13	13	13	9	8	11	13	14
Indiana								2	2	3	7	9	7	10	5	10	5	10	17	25	31	34
Kentucky								1	1	0	1	1	0	0	5	5	2	3	2	0	2	*
Missouri									2	1	2	5	4	5	6	7	11	12	13	19	21	25
New Jersey									2	3	4	8	9	9	12	8	6	6	6	9	11	17
West Virginia									1	1	3	1	1	1	3	5	5	6	3	5	3	4
Connecticut									1	3	6	3	0	0	1	0	2	1	1	2	4	5
North Carolina									2	0	0	0	0	0	2	2	0	0	2	5	5	5
Louisiana									1	0	0	0	0	0	1	0	0	0	0	0	1	2
South Dakota									1	1	3	3	0	0	0	0	0	4	11	9	10	8
Nevada										1	0	1	0	0	0	1	1	4	3	1	3	0
Arizona											2	2	1	0	0	2	1	1	2	1	1	2
Rhode Island											2	2	0	0	4	4	4	3	0	0	0	0
Delaware											2	3	2	2	1	0	0	0	0	0	0	0
Idaho											2	1	1	4	5	6	4	8	3	8	9	12
Mississippi											1	0	0	0	0	3	2	1	1	2	0	1
Montana											1	2	0	0	0	0	0	2	4	3	7	7
Tennessee											1	8	4	6	3	3	4	2	2	2	2	3
New Mexico												1	0	0	0	1	1	1	0	1	1	2
Wyoming												1	0	1	0	0	0	0	1	0	0	0
Alabama													2	1	3	1	1	0	0	0	1	3
Georgia													1	0	0	0	0	0	0	0	1	1
North Dakota													1	1	1	2	6	8	5	3	6	4
Oklahoma														1	1	2	1	3	5	5	5	12
South Carolina														1	1	1	0	0	0	0	0	0
Texas														3	0	0	0	0	0	0	1	3
Arkansas															1	2	2	2	0	0	0	2
Total	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947

*No report.

SUMMARY OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES - ACTIVE JANUARY 1, 1928

tate	Number of assns.	Number of herds	Number of cows	Average per assn.		Total dairy cows (B.A.E. Ests)	Percentage of cows in D.H.I.A.'s.
				Herds	Cows		
labama	3	35	1,625	11.7	541.7	350,000	0.5
rizona	2	72	1,998	36.0	999.0	35,000	5.7
rkansas	2	54	265	27.0	132.5	379.000	0.1
alifornia	32	1,323	61,176	41.3	1,911.8	602,000	10.2
olorado	9	105	1,788	11.7	198.7	242,000	0.7
onnecticut	5	96	2,095	19.2	419.0	109.000	1.9
eorgia	1	20	600	20.0	600.0	346,000	0.2
daho	12	401	4,987	33.4	415.6	170,000	2.9
llinois	34	844	13,975	24.8	411.0	968,000	1.4
ndiana	34	809	10,877	23.8	319.9	693,000	1.6
owa	86	2,103	30,517	24.5	354.8	1,314,000	2.3
ansas	14	338	5,985	24.1	427.5	701,000	0.9
ouisiana	2	28	1,917	14.0	958.5	204,000	0.9
aryland	7	147	4,185	21.0	597.9	185,000	2.3
assachusetts	9	205	4,263	22.8	473.7	134,000	3.2
ichigan	105	2,428	27,745	23.1	264.2	849,000	3.3
innesota	105	2,560	35,446	24.4	337.6	1,528,000	2.3
ississippi	1	23	425	23.0	425.0	390,000	0.1
issouri	25	562	8,802	22.5	352.1	827,000	1.1
ontana	7	150	3,043	21.4	434.7	175,000	1.7
ebraska	17	406	6,236	23.9	366.8	613,000	1.0
ew Hampshire	4	73	1,393	18.2	349.5	77,000	1.8
ew Jersey	17	385	9,245	22.6	543.8	122,000	7.6
ew Mexico	2	50	1,408	25.0	704.0	65,000	2.2
ew York	42	1,002	20,621	23.9	491.0	1,330,000	1.6
orth Carolina	5	77	2,786	15.4	557.2	321,000	0.9
orth Dakota	4	88	1,836	22.0	459.0	458,000	0.4
hio	29	702	9,217	24.2	317.8	917,000	1.0
klahoma	12	206	4,483	17.2	373.6	610,000	0.7
regon	11	456	9,147	41.5	831.5	216,000	4.2
ennsylvania	65	1,638	22,937	25.2	352.9	855,000	2.7
outh Dakota	8	179	2,620	22.4	327.5	518,000	0.5
ennessee	3	55	1,657	18.3	552.3	446,000	0.4
exas	3		No data reported				
tah	5	232	2,419	46.4	483.8	92,000	2.6
ermont	25	580	11,470	23.2	458.8	284,000	4.0
irginia	20	361	10,207	18.0	510.4	364,000	2.8
ashington	10	224	5,184	22.4	518.4	270,000	1.9
est Virginia	4	69	1,191	17.2	297.8	219,000	0.5
isconsin	166	4,241	69,115	25.5	416.4	1,994,000	3.5
otal	947	23,327	414,891			19,972,000	
erage				*24.7	439.5		2.0

Averages computed on basis of 944 associations as Texas did not report number of herds or cows for its three associations.

TEN HIGHEST STATES IN DAIRY HERD IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS. JANUARY 1, 1927 AND JANUARY 1, 1928.

Largest Number of D.H.I.A.'s.		Largest Number of Members.	
1927	1928	1927	1928
Wisconsin	Wisconsin	Wisconsin	Wisconsin
Michigan	Michigan)tie	Michigan	Minnesota
Minnesota	Minnesota)	Minnesota	Michigan
Iowa	Iowa	Iowa	Iowa
Pennsylvania	Pennsylvania	California	Pennsylvania
New York	New York	Pennsylvania	California
California	Illinois)tie	New York	New York
Indiana	Indiana)	Indiana	Illinois
Illinois	California	Illinois	Indiana
Ohio	Ohio	Ohio	Ohio

Largest Number of Cows in D.H.I.A.'s.		Highest Percentage of All Cows on Test.	
1927	1928	1927	1928
Wisconsin	Wisconsin	California	California
California	California	Nevada	New Jersey
Iowa	Minnesota	New Jersey	Arizona
Minnesota	Iowa	Arizona	Oregon
Michigan	Michigan	Vermont	Vermont
Pennsylvania	Pennsylvania	Wisconsin	Wisconsin
New York	New York	Michigan	Michigan
Illinois	Illinois	Oregon	Massachusetts
Vermont	Vermont	Utah	Idaho
Indiana	Indiana	Virginia	Virginia

TESTING CLUBS OR CIRCLES AS REPORTED BY STATE DAIRY SPECIALISTS.

State	No. of Clubs	No. of Herds	No. of Cows	Average Per Club No. of Herds	No. of Cows.
Arizona	1	6	85	6.0	85.0
Maryland	4	90	1,105	22.5	276.2
Minnesota*	7	311	2,746	51.8	457.7
Missouri	1	14	196	14.0	196.0
Montana	1	16	160	16.0	160.0
New York	4	68	544	17.0	136.0
Nevada	2	12	297	6.0	148.5
N. Carolina	1	8	34	8.0	34.0
N. Dakota	14	200	1,952	14.3	139.4
Oregon	2	32	399	16.0	199.5
Washington	10	614	6,040	61.4	604.0
Total	47	1,371	13,558		
Average				29.8	294.7

* Data reported on 6 circles and averages based on 6

OFFICIALS IN CHARGE OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES.

ALABAMA ....F. W. Burns, Extension Service, College of Agriculture, Auburn.
ARIZONA ....Clyde F. Rowe, Extension Service, College of Agriculture, Tucson.
ARKANSAS ......W. H. Woodley, Extension Service, College of Agriculture, Fayettevill

CALIFORNIA ....G. E. Gordon, Extension Service, College of Agriculture, Berkeley.
COLORADO ......C. A. Smith, c/o State Dairy Commissioner, Fort Collins.
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DELAWARE .....C. A. McCue, Director of Extension, School of Agriculture, Newark

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ILLINOIS ......C. S. Rhode, Extension Service, College of Agriculture, Urbana.
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IOWA ....Burton Oderkirk, Agr. Ext., Iowa State College of Agriculture, Ames.
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MAINE .... R. F. Talbot, Extension Service, College of Agriculture, Orono
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MASSACHUSETTS. C. J. Fawcett, Extension Service, Mass. Agri. College, Amherst.
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R. E. Horwood, Marquette, Mich.
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C. E. Geddes " " " " " " " " "
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NEVADA .... V. E. Scott, Agricultural Extension, College of Agriculture, Reno
NEW HAMPSHIRE. G. L. Waugh, Extension Service, College of Agriculture, Durham.
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Corvallis.

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Dairy-Herd-Improvement Association Letter Vol. 4 No. 3

March, 1928.

STUDIES OF STATE DAIRY-HERD-IMPROVEMENT-ASSOCIATION RECORDS.

In the August, 1927 letter, an announcement was made relative to the tabulations, by States, made by this bureau. Last year the work was started on July 1, and all 1925-26 records, that had been received prior to that time were included. By the time the studies were completed and copies returned to the States it was late in the season, possibly too late in many cases for using the results in exhibits at fall fairs and meetings.

It is felt that most of the 1926-1927 records should be in this office by March 31, and accordingly the date for starting these studies has been advanced to April 2. By this arrangement it is hoped that the work will be completed and copies returned to the States by July 1. The studies will include the following:

Relation of Milk Production to Other Factors.
Relation of Butterfat Production to Other Factors.
Influence of the Season of Freshening.
Comparison of Purebreds and Grades.
Relation of the Cost of Grain to Other Factors.

COMPLETE RECORDS NECESSARY.

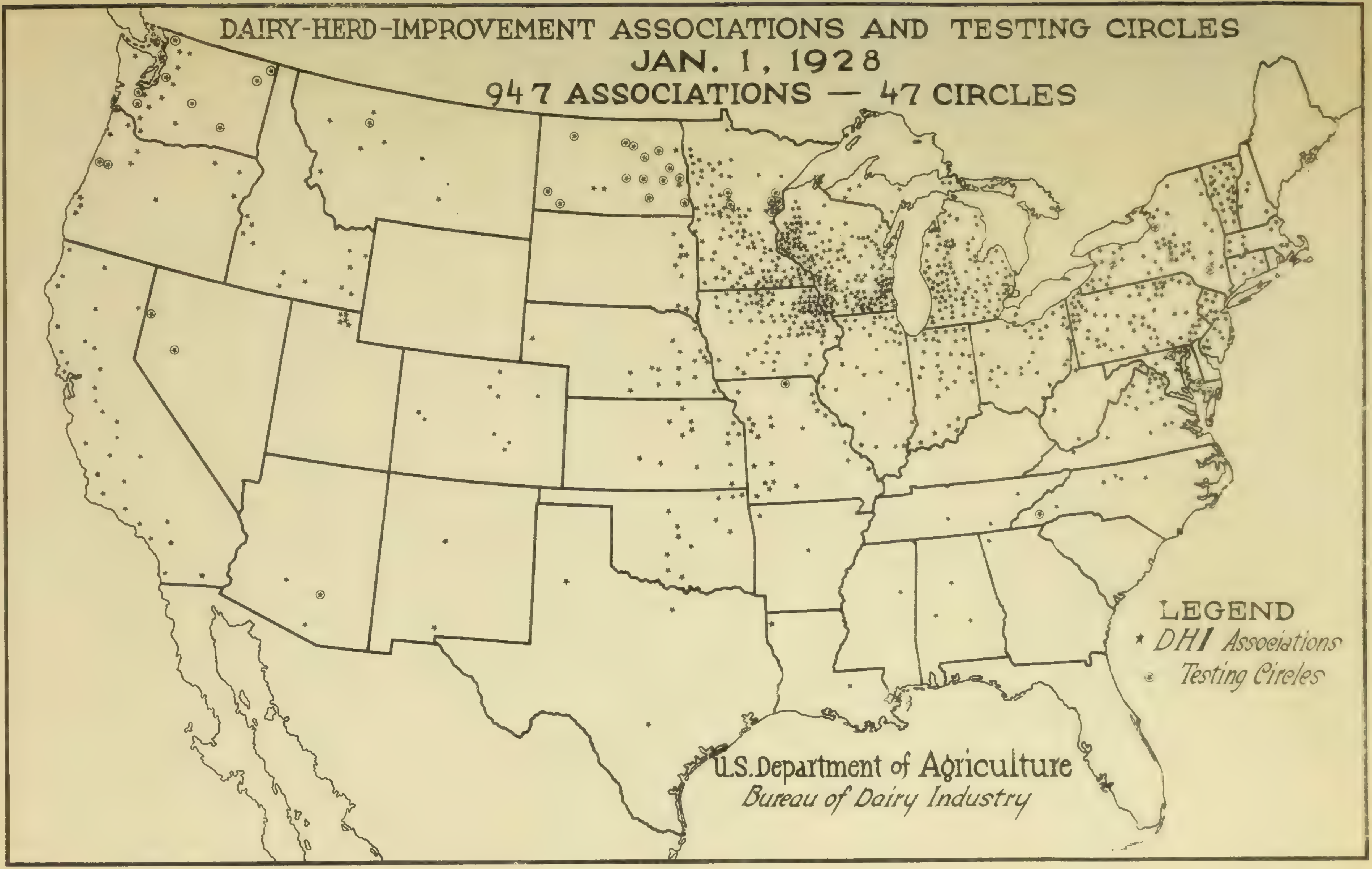
Some testers still give insufficient information on the individual cow records. In the making of herd and association summaries, copies of which are returned to the States, certain information is essential. The name of the owner, association, and State, and the name and number of the cow on test are usually given. The months on test, months in milk, and testing period are often left out. These items are necessary. The freshening dates and dry dates are also important. The production data and feed consumption data are generally given although a number of testers have failed to include the feeding information. Strange to say, some testers have omitted value of product; and some have omitted the items of cost of roughage, including pasture, cost of grain, and total feed cost.

In addition to the above data, which are necessary to make complete herd and association summaries, there are other data that make the records increasingly valuable. Information on breeding is of value to the member, to the State specialist, and to this bureau. The proving of purebred dairy sires based on comparisons of production records of daughters and the dams of those daughters is being stressed in most States at the present time. In order to prove sires, the name, number, and breed of the sire and the name and number of the dam of the cow on test, together with the months in milk, months on test, production of milk and butterfat, should also be included.

The quality of records kept has improved markedly from year to year. Perhaps this indicates better testers, on the average, now than formerly. With better testers and with more nearly complete records, the members are able to improve their herds still further. This may explain, at least in part, the continued increase in production per cow of the cows in dairy-herd-improvement associations. If we are to make further progress in this work or even to hold the ground already won, records completely filled out and used to their fullest extent are necessary.

APPRECIATION.

Through the splendid cooperation of the State dairy specialists in sending information on the number of active dairy-herd-improvement associations, their location, number of members, and number of cows on test, the completion of the summary in time for the February letter was made possible. On the following page will be found a map showing the location of the 947 active associations and the 47 testing clubs and circles reported.



DAIRY-HERD-IMPROVEMENT ASSOCIATIONS AND TESTING CIRCLES
JAN. 1, 1928
947 ASSOCIATIONS — 47 CIRCLES

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Dairy-Herd-Improvement Association Letter Vol. 4, No. 4.

April, 1928.

Efficiency and Economy

It is a demonstrated fact that the analyses of records of individual cows in dairy-herd-improvement associations, followed by the application of the factors of selection, feeding, and breeding, lead to increased efficiency and economy of production. In order that the best results may be obtained by the dairymen from these records, efficiency and economy must also enter into the supervisory side of the problem, that is, in the organization and reorganization of the association, in the training and supervision of testers, and, most important of all, in seeing that the lessons shown by the records are actually applied by all the members.

Improvement in methods used in supervisory work is not a new development. Better methods have been evolving since the first association brought its problems. In the last few years the rapid growth in numbers of associations has brought about a greater need for improved methods.

Probably the most effective methods developed in the last few years for improved efficiency in dairy-herd-improvement association work have been the following:

(1) Training schools for testers. Definite courses of intensive instruction for prospective testers are given at the universities.

(2) Careful selection of testers. The testers are carefully selected from lists of applicants who have had dairy experience and who have the necessary qualifications for leadership in dairy-herd-improvement association work.

(3) Local dairy leader method of organization. In place of the personal canvass for members by the specialist and county agents, the interest for organization is aroused and actual signing of membership blanks is accomplished, through the county dairy committee or local community dairy leaders. With this method the organization becomes one sponsored by the dairymen themselves, and one in which they will take more interest.

(4) State and regional testers' conferences. By holding group conferences, preferably with the county agents of the counties represented, closer relationships are developed, broader programs are planned, and elements of supervision that save much field time are worked out.

(5) Exhibits, tours, and picnics. Through the group conferences plans can be worked out for the testers so that successful exhibits, tours, and picnics can be held. Exhibits and tours offer a real medium through which association results can be demonstrated both to the members and to non-members.

The five practices just mentioned do not constitute the whole range of improved practices that have been developed by the dairy extension specialists. They do, however, show that the specialists are working on methods to meet the need for economy in supervision and increased efficiency in the operation of dairy-herd-improvement associations.

Progress in State Studies

Work is now progressing rapidly on the State tabulations, and it is believed that these studies will furnish some interesting comparisons with the studies by States completed a year ago.

For those States having a small number of records the studies based on season of freshening and on purebreds and grades by ages will not be made. Such studies require a large number of records in order to obtain the true relationships. In fact, if made from a small number of records the results may be actually misleading.

New Introduction Project

The every-other-month type of testing association as a workable organization for dairy-herd-improvement, where the herds are small and where the cost of membership in a regular association would be too great, is being introduced in Alabama. This is not a new type of organization as it has been in successful operation in a limited territory in Minnesota for a number of years. L. H. Stinnett has been appointed on this project in Alabama. It is planned to have several of these organizations in operation before the end of the year.

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Dairy-Herd-Improvement Association Letter Vol. 4, No. 5.

May, 1928.

COMPARISON OF BUTTERFAT-PRODUCTION RECORDS OF HERDS IN DAIRY-HERD IMPROVEMENT ASSOCIATIONS.

(1924-25, 1925-26, and 1926-27)

In the November, 1927, letter a table was shown comparing the herds in dairy-herd improvement associations for the two testing years 1924-25 and 1925-26. The following table also includes the recently studied herd comparisons for the testing year 1926-27.

Comparison of Records of Herds Grouped According to Butterfat Production

(1924-25, 1925-26, and 1926-27)

Butterfat production per cow.	1924-25		1925-26		1926-27	
	No. of herds.	% of all herds.	No. of herds.	% of all herds.	No. of herds.	% of all herds.
(pounds)						
199 and less	307	6.1	552	5.4	480	4.2
200 - 249	1,080	21.5	1,803	17.6	1,847	16.2
250 - 299	1,631	32.4	3,191	31.2	3,607	31.7
300 - 349	1,261	25.1	2,931	28.6	3,263	28.7
350 - 399	562	11.2	1,244	12.1	1,591	14.0
400 - 449	140	2.8	406	4.0	470	4.2
450 - 499	41	0.8	90	0.9	92	0.8
500 and over	8	0.1	24	0.2	20	0.2
Totals	5,030	100.0	10,241	100.0	11,370	100.0

This table shows a constant increase in the percentage of herds in the higher producing groups with a corresponding decrease in the lower producing groups. It is interesting to note that in 1924-25, 40.0 per cent of the herds averaged over 300 pounds of butterfat per cow; in 1925-26, 45.8 per cent; and in 1926-27, 47.9 per cent. This indicates that the associations are successful in developing the low producing herds to higher production by culling, feeding, and breeding. The following table shows a similar trend of progress.

Progress in Results of Dairy-Herd-Improvement Association Work

Year	No. of associations.	Cow years.	Ave. milk (pounds)	Ave. butterfat (pounds)
Prior to 1920	120	40,000	6,077	247
1923-24	105	25,850	7,060	279
1924-25	371	96,102	7,257	286
1925-26	409	108,312	7,322	288
1926-27	522	142,084	7,410	295

The association averages can be grouped in the same manner as the herd averages - according to the butterfat production per cow. The following table gives the comparison of associations when grouped in this manner.

Comparison of Butterfat-Production Records of Dairy-Herd Improvement Associations.

(1924-25, 1925-26, and 1926-27)

Butterfat production per cow (pounds)	1924-25		1925-26		1926-27	
	No. of ass'ns.	% of all ass'ns.	No. of ass'ns.	% of all ass'ns.	No. of ass'ns.	% of all ass'ns.
Below 200	2	0.5	1	0.2	1	0.2
200 - 249	49	12.9	36	7.7	34	6.5
250 - 299	210	55.3	238	51.1	262	50.2
300 - 349	114	30.0	178	38.2	210	40.2
350 - 399	5	1.3	12	2.6	15	2.9
400 and over	-	-	1	0.2	-	-
Totals	380	100.0	466	100.0	522	100.0

In 1924-25, 31.3 per cent of the associations studied had an average butterfat production per cow of 300 pounds or more; in 1925-26, 41.0 per cent, and in 1926-27, 43.1 per cent.

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Dairy Herd Improvement Association Letter Vol. 4 No. 6.

June, 1928.

Further Studies of D.H.I.A. Herds.

1926-27 Records.

In the previous issues of the D.H.I.A. Letter for this year tables were included giving various herd and association comparisons. The records included in these studies are those sent in for summarization by the various State Specialists and include all records that were sufficiently complete to include in herd and association summaries. The two tables following are a continuation of the studies included in the May letter. In the May letter the tables included a herd classification into butterfat groups for all of the records studied. The tables herewith give the same information by States, giving the herds in the various butterfat groups in percentages rather than the actual numbers. By giving percentages the comparisons by States can be made more readily. The second table is derived from the first and gives the percentage of herds below 300 pounds of butterfat and the percentage above 300 pounds of butterfat. The average milk and butterfat production per cow for all the herds in the State whose records were included is also given.

Herd Classification -- By States
(in percentages)

Dairy-Herd-Improvement Associations

Based on Butterfat Averages - testing year 1926-1927.

State	Butterfat Groups Percentage of All Herds Studied by States 1926-27.								Total No. of Herds Studied
	199 & less	200-249	250-299	300-349	350-399	400-449	450-499	500& Over	
Wisconsin	2.7	14.3	33.6	32.1	13.5	3.4	0.3	0.1	2,904
Michigan	1.7	10.2	26.6	31.4	21.0	7.1	1.6	0.4	1,829
Iowa	9.4	25.1	29.8	22.3	9.9	2.8	0.6	0.1	1,454
Minnesota	7.1	23.7	32.2	22.9	10.6	3.0	0.4	0.1	1,051
Pennsylvania	3.5	15.9	31.1	27.2	15.1	6.0	1.0	0.2	517
Indiana	1.7	12.5	35.1	30.5	13.9	4.7	1.6	0.2	512
Ohio	0.8	7.8	30.9	33.0	20.1	5.5	1.7	0.2	473
Illinois	3.2	14.8	35.3	32.1	11.8	2.1	0.7	-	433
Kansas	3.5	16.2	35.5	28.6	12.8	2.8	0.3	0.3	290
Missouri	5.1	22.4	34.1	28.6	8.2	0.8	0.4	0.4	255
Vermont	8.3	23.7	30.7	18.4	14.5	3.1	1.3	-	228
Idaho	2.0	10.8	24.0	33.3	22.5	5.9	1.5	-	204
South Dakota	17.3	28.9	32.4	16.8	4.0	0.6	-	-	173
Oregon	1.2	8.7	23.9	36.6	21.0	5.2	1.7	1.7	172
New Jersey	0.6	10.4	39.0	35.1	10.4	4.5	-	-	154
Maryland	4.5	15.2	35.7	30.3	12.5	0.9	0.9	-	112
Nebraska	6.5	10.2	32.4	32.4	12.0	5.6	0.9	-	108
New York	5.3	27.6	42.1	21.1	2.6	1.3	-	-	76
Massachusetts	2.6	13.2	36.9	26.3	10.5	7.9	2.6	-	76
Montana	1.5	13.2	42.6	27.9	11.8	1.5	1.5	-	68
North Carolina	1.9	13.5	44.2	23.1	7.7	7.7	1.9	-	52
Colorado	3.8	9.6	38.5	21.2	11.5	15.4	-	-	52
North Dakota	5.4	21.6	35.2	27.0	5.4	5.4	-	-	37
West Virginia	-	22.6	22.6	35.4	16.2	3.2	-	-	31
Connecticut	-	25.0	39.3	17.9	10.7	7.1	-	-	28
Nevada	-	25.0	41.7	25.0	8.3	-	-	-	24
Oklahoma	-	15.8	47.4	21.0	10.5	5.3	-	-	19
Alabama	66.7	33.3	-	-	-	-	-	-	15
Texas	8.3	25.0	25.0	33.3	-	8.4	-	-	12
Louisiana	11.2	44.4	44.4	-	-	-	-	-	9
Georgia	-	-	100.0	-	-	-	-	-	2
United States	4.2	16.2	31.7	28.7	14.0	4.2	0.8	0.2	11,370

Herd Classification - By States
Based on Butterfat Averages of Herds in
Dairy Herd Improvement Associations 1926-27.
Percentage of Herds Below 300 Lbs. B'fat. and above 300 Lbs. B'fat

State	% of herds below 300#	% of herds above 300#	Average for all herds studied		
			Milk	%	Butterfat
Oregon	33.8	66.2	7,466	4.2	313
Idaho	36.8	63.2	7,627	4.2	318
Michigan	38.5	61.5	7,930	4.0	316
Ohio	39.5	60.5	7,407	4.2	313
W. Va.	45.2	54.8	7,798	4.1	323
Indiana	49.1	50.9	7,018	4.3	303
Nebraska	49.1	50.9	8,035	3.8	303
New Jersey	50.0	50.0	7,728	3.8	297
Pennsylvania	50.5	49.5	7,625	3.9	297
Wisconsin	50.6	49.4	7,627	3.9	296
Colorado	51.9	48.1	8,017	3.9	311
Mass.	52.7	47.3	7,928	3.8	304
Illinois	53.3	46.7	7,721	3.8	292
Kansas	55.2	44.8	7,692	3.8	292
Maryland	55.4	44.6	7,193	4.0	286
Montana	57.3	42.7	7,140	4.0	289
Texas	58.3	41.7	5,599	4.9	275
N.C.	59.6	40.4	6,455	4.4	286
Missouri	61.6	38.4	6,817	4.2	287
N. Dak.	62.2	37.8	7,299	3.9	284
Vermont	62.7	37.3	6,286	4.4	277
Minnesota	63.0	37.0	7,163	3.9	277
Oklahoma	63.2	36.8	5,995	4.8	287
Iowa	64.3	35.7	7,038	3.9	275
Connecticut	64.3	35.7	7,383	3.9	289
Nevada	66.7	33.3	7,677	3.6	274
New York	75.0	25.0	7,065	3.8	270
S. Dak.	78.6	21.4	6,585	3.8	251
Georgia	100.0	-	5,595	4.8	268
Louisiana	100.0	-	4,879	4.8	234
Alabama	100.0	-	4,145	4.5	188
United States	52.1	47.9	7,410	4.0	295

Use of the Slide Rule for Testers

A few of the testers in dairy-herd-improvement associations are using slide rules in making computations. These testers find that it is possible to do the work much more rapidly with a slide rule than by the use of computing books. A ten inch slide rule is accurate to one part in one thousand or one-tenth of one per cent. The saving of time in the tester's work comes from the fact that the whole problem can be computed for each animal as a continuous operation without clearing the rule at each step. Im the coding of the records in this bureau we have found the use of the slide rule for certain divisions and computations to be a time saver over the use of calculating machines.

News Notes.

There are now 72 herd testing units and 60,000 cows under the control of the United Cow Testing Association of Victoria (Australia). A system of branding all cows under test has been instituted in order that they may be identified when changing owners.

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Dairy-Herd Improvement Association Letter Vol. 4 No. 7

July 1928.

MORE THAN 1,000 DAIRY-HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

For the first time in the history of the dairy-herd-improvement association work in the United States, the 1,000 figure has been reached. Although the exact number in operation on July 1 is not known, reports received from the State dairy specialists on that date show that the number exceeded 1,000. Assuming the number of cows per association to be the same as of January 1, 1928, the total number of cows on monthly test at the present time is approximately 450,000.

TESTING IN FINLAND

A recent publication, "Statistik over Kontrollforeningarnas", in Finland gives interesting information about the progress of testing work in that country from 1913 to 1926. In Finland organizations created for the purpose of testing cows for milk and butterfat are known as control societies. The following table shows that in addition to the growth in number of societies in Finland during the period 1913-1926, there has been an increase in the production per cow except for the period during the World War and shortly thereafter.

Growth in Control-Society Work in Finland 1913-1926.

Year	No. of societies	Total cows.	Milk (pounds)	Butterfat (per cent)	Butterfat (pounds)
1913	132	43,392	4,589	3.87	178
1914	189	60,690	4,418	3.86	170
1915	214	65,647	4,220	3.84	162
1916	243	82,276	4,580	3.83	176
1917	226	72,489	4,189	3.86	161
1918	153	43,159	3,489	3.91	136
1919	145	41,927	3,619	3.88	141
1920	192	57,195	4,103	3.87	159
1921	235	67,773	4,332	3.93	170
1922	267	82,166	4,580	3.92	180
1923	322	101,080	4,565	3.90	178
1924	369	114,965	4,778	3.92	187
1925	430	135,266	5,155	3.93	202
1926	543	159,250	5,339	3.95	211

Grouping of Control Societies on Basis of Average Milk Production Per Cow Per Society - 1926.

Milk production per cow	Control societies		Cows	
Pounds	Number	% of all societies	Number	% of all cows
6,600 and over	26	4.8	12,431	7.8
5,500 - 6,600	156	28.7	56,121	35.2
4,950 - 5,500	131	24.1	36,659	23.0
4,400 - 4,950	115	21.2	28,662	18.0
3,850 - 4,400	79	14.6	18,071	11.4
Under 3,850	36	6.6	7,308	4.6
Total	543	100.0	159,250	100.0
Average 5,339				

Grouping of Control Societies on Basis of Average Butterfat Production Per Cow Per Society - 1926.

B'fat production per cow	Control Societies		Cows	
Pounds	Number	% of all societies	Number	% of all cows.
264 and over	20	3.7	9,127	5.7
242 - 264	36	6.6	13,898	8.7
220 - 242	110	20.3	35,794	22.5
198 - 220	151	27.8	45,988	28.9
176 - 198	125	23.0	31,960	20.1
154 - 176	79	14.5	18,026	11.3
Under 154	22	4.1	4,457	2.8
Total	543	100.0	159,250	100.0
Average 211				

According to the report, the estimated number of cows in Finland is 1,300,000 with an average yearly milk production of 3,740 pounds. About 12 per cent of all the cows, or 159,000, are in control societies. The average yearly milk production of control society cows is 5,339 pounds, which is about 43 per cent more than the average yearly production of all the cows in the country.

HERD TESTING IN SOUTH AUSTRALIA

1925-26

The number of cows on test in South Australia in 1925-26 was 1,509 in four associations as compared with 2,098 in five associations in 1924-25. In 1925-26, however, there was an improvement in production. During this period each cow produced, on the average, 577 gallons, or 5,770 pounds, of milk and 249 pounds of butterfat. In 1924-25 the average production was 540 gallons, or 5,400 pounds, of milk and 236 pounds of butterfat. The number of cows on test in 1925-26 represents approximately 1 per cent of all the cows in the State of South Australia. It is estimated that the production per cow of all the cows in South Australia in 1925-26 was 324 gallons, or 3,240 pounds, of milk and approximately 140 pounds of butterfat.

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Dairy-Herd Improvement Association Letter Vol. 4, No. 8.

August, 1928.

GREAT EXPANSION IN GERMAN TESTING ASSOCIATIONS

In Germany testing associations or, as they are called, "milk cow control societies" have been in operation since 1897. During the world war the number of testing associations declined markedly. Following the war, however, a much greater development in number of associations and in cows on test has taken place in Germany than in the United States.

In 1908 there were 207 control societies in operation in Germany. By 1922, the number had increased to 1,058; on January 1, 1925, to 1,610; on January 1, 1926, to 2,014, and on January 1, 1927 to 2,245.

On January 1, 1925, the associations included 27,838 members owning 581,691 cows, and on January 1, 1927, the number had increased to 42,073 members testing 819,697 cows. Since there are slightly more than 9 million cows in Germany, the percentage of cows on test in 1927 was 8.9 per cent of the total, as compared with 6.6 per cent in 1925.

A number of the Provinces in Germany rank high in percentage of cows on test as shown by the following:

Danzig	27.2%	Mecklenburg-Strelitz	18.0%
East Prussia	24.9%	Mecklenburg-Schwerin	16.9%
Oldenburg	20.7%	Hanover	14.7%
Schleswig-Holstein	18.8%	Bradenburg	14.1%
Pommern	18.7%		

For the cows on test during 1926 the average production was found to be 7,245 pounds of milk and 242.7 pounds of butterfat with an average test of 3.35 per cent.

COMPLETE RECORDS NECESSARY

The tester in a dairy-herd improvement association has an important position. It has been stated that when a tester has entered the records of each cow in the herd record books of the members his work is only half done. The other half of his work consists in so analyzing the records for the members that the improvement factors can be put into practice.

The analysis of the records for the dairymen is perhaps the most important part of the testing work. At any rate the testing work is wasted unless the records are carefully analyzed. It is impossible, however, for a tester to make an accurate and impartial analysis of a set of records if they are not complete.

The various items in the member's herd record books that have been omitted by the testers have been called to the attention of this bureau by a study on feeds that is now under way. In this study, which is being carried on in cooperation with several of the State dairy specialists, several herd record books from a number of associations in each State are lent to this bureau. Herd record books are needed because production and feed consumption are studied by months. Because of incomplete information, however, it has been necessary to return whole sets of these record books which supposedly were kept by the best testers in these States.

Such items as breed, age, weight, months on test, and months in milk, are often not entered in the herd book. The feed items frequently are listed in too general terms. The hay is sometimes listed simply as hay without giving the kind, as clover, timothy, mixed, and alfalfa. Grain is entered as grain mix - so many pounds - with no way of telling the component parts.

Without complete records in the herd book the tester is not in a position to make the best recommendations to the members for dairy-herd improvement. The records are his foundation upon which improvement can be built.

A 1928 RECORD

In reporting dam and daughter comparisons to this bureau the most complete records last year were furnished by the tester for the Fort Atkinson, Wis., Dairy-Herd-Improvement Association. Of the records submitted by him, 110 gave complete sire and dam information, thereby

furnishing the basis for proving eight sires and partially proving thirty additional sires. The work of this tester was an outstanding accomplishment. Until recently these records have been by far the best that have even been received. Recently, however, 113 complete records giving dam and daughter information were received from the Cedarburg-Grafton Dairy-Herd Improvement Association of Wisconsin. From these records it was possible to prove eight sires, partially prove twenty-five other sires, and obtain additional information on a previously proved sire, thereby increasing the number of dam and daughter comparisons to 31 for the one sire. This is the greatest number of dam and daughter comparisons that have been received for a single sire.

What has been accomplished in the way of measuring the transmitting ability of sires by these two testers can be duplicated by other testers. It is not merely the record of having proved a large number of sires that counts. More important than this is the effect that such breeding information, located by the tester, will have on the development of the future herds of his members.

DAIRY HERD IMPROVEMENT ASSOCIATIONS

THE KEY TO SUCCESSFUL DAIRYING

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 4, No.9.

September, 1928.

TABLES FOR COMPUTING INGREDIENTS IN GRAIN RATIONS ACCORDING TO AMOUNTS FED DAILY.

It has been realized for some time that a method which would enable testers to obtain more easily the proportionate parts of the various grain rations used by their members would result in more nearly complete herd record books. A Missouri tester has worked out several simple tables covering several of the more common rations used by his members. From these ideas seven tables have been developed which it is hoped will cover a majority of the rations fed in dairy-herd improvement association herds. They are offered in this letter to the State dairy specialists for comment and criticism and as a test of their adaptability. If they prove practical it is planned to have them added to the "Cow Tester's Handbook" along with several other tables, such as a gestation table, and a table for centering the testing date.

Explanation of the Tables

Tables 1 to 7 cover grain rations composed of 300 to 900 pounds and based on a 30-day month. They are subdivided to show the grain credits for cows fed from one to twenty pounds of the grain mixture daily.

Table 4, for the 6-part grain ration, will serve as a good example of the method to be followed in interpreting the tables. Such a table covers practically all rations composed of ingredients making up a 600-pound grain mix. Take the case of a 3:2:1 mixture, such as 3 parts of corn and cob meal, 2 parts of ground oats, and 1 part of cottonseed meal. This would make a 6-part ration. In a 30-day month the tester finds one cow being fed 5 pounds per day of this ration. Under the first column headed "Grain per day" he follows down to 5, which represents that amount. To the right on this same horizontal line under the various columns are the proportionate parts. Under the column headed "3", which in this case represents corn and cob meal (300 pounds in the mix) he finds 75 the amount in pounds of corn and cob meal to be credited for the month. In the same way under the column headed "2" he finds 50, which is the number of pounds to be credited for ground oats, and under the column "1" he finds 25, the amount of cottonseed meal. The total amount of grain from which the cost of grain can be computed is found in the last column to the right, which is 150. If the cow had been fed 8 pounds of the mix daily, the amounts would have been 120, 80, and 40 respectively.

The column headed "½" represents 50 pounds in a grain mix, or ½ part. A ration consisting of corn and cob meal, ground oats, and cottonseed meal would be represented thus:

Corn and cob meal	300	pounds	or	3	parts
Ground oats	150	"	"	1½	"
Cottonseed meal	150	"	"	1½	"
Total mix	600	"	"	6	"

In such a case when determining the amount for the oats or the cottonseed meal the column "1½" would be used. It will be seen, therefore, that this table covers such mixes as 3:2:1, 4:2, 4:1:1, and 2:2:1:½:½. A 1,200-pound mix would be figured from the same table by bringing the component parts to a 6-part basis.

The other tables are handled in exactly the same manner, except that they represent mixes having other proportions, as 300 pounds, 400 pounds, 500 pounds, etc., subdivided into their component parts.

As previously stated, the first seven tables are for a 30-day month. Table 8 gives the correction factors for 31-day months, 28-day months, and for periods in which a cow is under test only a fractional part of a month. For the 31-day month the amounts of grain to be added to the varying amounts fed in a 30-day month are listed. In the example just given where a cow fed 5 pounds daily of a 3:2:1 mix received 75, 50, and 25 pounds in a 30-day month, by applying the correction factors given in this table, the amounts fed would be 77, 52, and 26 pounds. For a 28-day month the table gives the amounts of grain to be deducted from the amounts fed in a 30-day month. In the same example of a 3:2:1 mix the amounts fed in a 28-day month would be 70, 47, and 23. For periods other than 30 days when heifers freshen and cows go dry, the decimals are given by which the grain weights can be multiplied.

Table 1. -- 3-part grain ration
30-day month

Grain per Day (pounds)	½	1	1½	2	2½	Total grain
1	5	10	15	20	25	30
2	10	20	30	40	50	60
3	15	30	45	60	75	90
4	20	40	60	80	100	120
5	25	50	75	100	125	150
6	30	60	90	120	150	180
7	35	70	105	140	175	210
8	40	80	120	160	200	240
9	45	90	135	180	225	270
10	50	100	150	200	250	300
11	55	110	165	220	275	330
12	60	120	180	240	300	360
13	65	130	195	260	325	390
14	70	140	210	280	350	420
15	75	150	225	300	375	450
16	80	160	240	320	400	480
17	85	170	255	340	425	510
18	90	180	270	360	450	540
19	95	190	285	380	475	570
20	100	200	300	400	500	600

Table 2.--4-part grain ration
30-day month.

Grain per day (Pounds)	1/2	1	1 1/2	2	2 1/2	3	3 1/2	Total grain
1	4	8	11	15	19	22	26	30
2	8	15	22	30	38	45	52	60
3	11	22	34	45	56	68	79	90
4	15	30	45	60	75	90	105	120
5	19	38	56	75	94	112	131	150
6	22	45	68	90	112	135	158	180
7	26	52	79	105	131	158	184	210
8	30	60	90	120	150	180	210	240
9	34	68	101	135	169	202	236	270
10	38	75	112	150	188	225	262	300
11	41	82	124	165	206	248	289	330
12	45	90	135	180	225	270	315	360
13	49	98	146	195	244	292	341	390
14	52	105	158	210	262	315	368	420
15	56	112	169	225	281	338	394	450
16	60	120	180	240	300	360	420	480
17	64	128	191	255	319	382	446	510
18	68	135	202	270	338	405	472	540
19	71	142	214	285	356	428	499	570
20	75	150	225	300	375	450	525	600

Table 3. --5-part grain ration.
30-day month

Grain per day (Pounds)	1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	Total grain
1	3	6	9	12	15	18	21	24	27	30
2	6	12	18	24	30	36	42	48	54	60
3	9	18	27	36	45	54	63	72	81	90
4	12	24	36	48	60	72	84	96	108	120
5	15	30	45	60	75	90	105	120	135	150
6	18	36	54	72	90	108	126	144	162	180
7	21	42	63	84	105	126	147	168	189	210
8	24	48	72	96	120	144	168	192	216	240
9	27	54	81	108	135	162	189	216	243	270
10	30	60	90	120	150	180	210	240	270	300
11	33	66	99	132	165	198	231	264	297	330
12	36	72	108	144	180	216	252	288	324	360
13	39	78	117	156	195	234	273	312	351	390
14	42	84	126	168	210	252	294	336	378	420
15	45	90	135	180	225	270	315	360	405	450
16	48	96	144	192	240	288	336	384	432	480
17	51	102	153	204	255	306	357	408	459	510
18	54	108	162	216	270	324	378	432	486	540
19	57	114	171	228	285	342	399	456	513	570
20	60	120	180	240	300	360	420	480	540	600

Table 4.--6-part grain ration
30-day month

Grain per Day (pounds)	½	1	1½	2	2½	3	3½	4	4½	5	5½	Total grain
1	2	5	8	10	12	15	18	20	22	25	28	30
2	5	10	15	20	25	30	35	40	45	50	55	60
3	8	15	22	30	38	45	52	60	68	75	82	90
4	10	20	30	40	50	60	70	80	90	100	110	120
5	12	25	38	50	62	75	88	100	112	125	138	150
6	15	30	45	60	75	90	105	120	135	150	165	180
7	18	35	52	70	88	105	122	140	158	175	192	210
8	20	40	60	80	100	120	140	160	180	200	220	240
9	22	45	68	90	112	135	158	180	202	225	248	270
10	25	50	75	100	125	150	175	200	225	250	275	300
11	28	55	82	110	138	165	192	220	248	275	302	330
12	30	60	90	120	150	180	210	240	270	300	330	360
13	32	65	98	130	162	195	228	260	292	325	358	390
14	35	70	105	140	175	210	245	280	315	350	385	420
15	38	75	112	150	188	225	262	300	338	375	412	450
16	40	80	120	160	200	240	280	320	360	400	440	480
17	42	85	128	170	212	255	298	340	382	425	468	510
18	45	90	135	180	225	270	315	360	405	450	495	540
19	48	95	142	190	238	285	332	380	428	475	522	570
20	50	100	150	200	250	300	350	400	450	500	550	600

Table 5--7-part grain ration
30-day month

Grain per Day (pounds)	½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	Total grain
1	2	4	6	9	11	13	15	17	19	21	24	26	28	30
2	4	9	13	17	21	26	30	34	39	43	47	51	56	60
3	6	13	19	26	32	39	45	51	58	64	71	77	84	90
4	9	17	26	34	43	51	60	69	77	86	94	103	111	120
5	11	21	32	43	54	64	75	86	96	107	118	129	139	150
6	13	26	39	51	64	77	90	103	116	129	141	154	167	180
7	15	30	45	60	75	90	105	120	135	150	165	180	195	210
8	17	34	51	69	86	103	120	137	154	171	189	206	223	240
9	19	39	58	77	96	116	135	154	174	193	212	231	251	270
10	21	43	64	86	107	129	150	171	193	214	236	257	279	300
11	24	47	71	94	118	141	165	189	212	236	259	283	306	330
12	26	51	77	103	129	154	180	206	231	257	283	309	334	360
13	28	56	84	111	139	167	195	223	251	279	306	334	362	390
14	30	60	90	120	150	180	210	240	270	300	330	360	390	420
15	32	64	96	129	161	193	225	257	289	321	354	386	418	450
16	34	69	103	137	171	206	240	274	309	343	377	411	446	480
17	36	73	109	146	182	219	255	291	328	364	401	437	474	510
18	39	77	116	154	193	231	270	309	347	386	424	463	501	540
19	41	81	122	163	204	244	285	326	366	407	448	489	529	570
20	43	86	129	171	214	257	300	343	386	429	471	514	557	600

Table 6. -- 8-part grain ration

30-day month

rain er day (Pounds)	1/2	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	Total
1	2	4	6	8	9	11	13	15	17	19	21	22	24	26	28	30
2	4	8	11	15	19	22	26	30	34	38	41	45	49	52	56	60
3	6	11	17	22	28	34	39	45	51	56	62	68	73	79	84	90
4	8	15	22	30	38	45	52	60	68	75	82	90	98	105	112	120
5	9	19	28	38	47	56	66	75	84	94	103	112	122	131	141	150
6	11	22	34	45	56	68	79	90	101	112	124	135	146	158	169	180
7	13	26	39	52	66	79	92	105	118	131	144	158	171	184	197	210
8	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
9	17	34	51	68	84	101	118	135	152	169	186	202	219	236	253	270
10	19	38	56	75	94	112	131	150	169	188	206	225	244	262	281	300
11	21	41	62	82	103	124	144	165	186	206	227	248	268	289	309	330
12	22	45	68	90	112	135	158	180	202	225	248	270	292	315	338	360
13	24	49	73	98	122	146	171	195	219	244	268	292	317	341	366	390
14	26	52	79	105	131	158	184	210	236	262	289	315	341	368	394	420
15	28	56	84	112	141	169	197	225	253	281	309	338	366	394	422	450
16	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480
17	32	64	96	128	159	191	223	255	287	319	351	382	414	446	478	510
18	34	68	101	135	169	202	236	270	304	338	371	405	439	472	506	540
19	36	71	107	142	178	214	249	285	321	356	392	428	463	499	534	570
20	38	75	112	150	188	225	262	300	338	375	412	450	488	525	562	600

Table 7. -- 9-part grain ration
30-day month.

ain r y ounds)	1/2	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	Total grain
1	2	3	5	7	8	10	12	13	15	17	18	20	22	23	25	27	28	30
2	3	7	10	13	17	20	23	27	30	33	37	40	43	47	50	53	57	60
3	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
4	7	13	20	27	33	40	47	53	60	67	73	80	87	93	100	107	113	120
5	8	17	25	33	42	50	58	67	75	83	92	100	108	117	125	133	142	150
6	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
7	12	23	35	47	58	70	82	93	105	117	128	140	152	163	175	187	198	210
8	13	27	40	53	67	80	93	107	120	133	147	160	173	187	200	213	227	240
9	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
10	17	33	50	67	83	100	117	133	150	167	183	200	217	233	250	267	283	300
11	18	37	55	73	92	110	128	147	165	183	202	220	238	257	275	293	312	330
12	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360
13	22	43	65	87	108	130	152	173	195	217	238	260	282	303	325	347	368	390
14	23	47	70	93	117	140	163	187	210	233	257	280	303	327	350	373	397	420
15	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450
16	27	53	80	107	133	160	187	213	240	267	293	320	347	373	400	427	453	480
17	28	57	85	113	142	170	198	227	255	283	312	340	368	397	425	453	482	510
18	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540
19	32	63	95	127	158	190	222	253	285	317	348	380	412	443	475	507	538	570
20	33	67	100	133	167	200	233	267	300	333	367	400	433	467	500	533	567	600

Table 8.-- Correction Factors for Other than 30 day periods. (Based on 30 day tables)

31-day month		28-day month				For testing period other than 30 days.			
Where grain on 30-day table is	Add following amounts (pounds)	Where grain on 30-day table is	Subtract following amounts (pounds)	Where grain on 30-day table is	Subtract following amounts (pounds)	Days in test period	Multiply grain weights by following decimal	Days in test period	Multiply grain weights by following decimal
1 - 15	-	1 - 7	-	308-322	21	1	.03	16	.53
16 - 45	1	8 - 22	1	323-337	22	2	.07	17	.57
46 - 75	2	23 - 37	2	338-352	23	3	.10	18	.60
76 - 105	3	38 - 52	3	353-367	24	4	.13	19	.63
106 - 135	4	53 - 67	4	368-382	25	5	.17	20	.67
136 - 165	5	68 - 82	5	383-397	26	6	.20	21	.70
166 - 195	6	83 - 97	6	398-412	27	7	.23	22	.73
196 - 225	7	98 - 112	7	413-427	28	8	.27	23	.77
226 - 255	8	113 - 127	8	428-442	29	9	.30	24	.80
256 - 285	9	128 - 142	9	443-457	30	10	.33	25	.83
286 - 315	10	143 - 157	10	458-472	31	11	.37	26	.87
316 - 345	11	158 - 172	11	473-487	32	12	.40	27	.90
346 - 375	12	173 - 187	12	488-502	33	13	.43	28	.93
376 - 405	13	188 - 202	13	503-517	34	14	.47	29	.97
406 - 435	14	203 - 217	14	518-532	35	15	.50		
436 - 465	15	218 - 232	15	533-547	36				
466 - 495	16	233 - 247	16	548-562	37				
496 - 525	17	248 - 262	17	563-577	38				
526 - 555	18	263 - 277	18	578-592	39				
556 - 585	19	278 - 292	19	593-600	40				
586 - 600	20	293 - 307	20						

DAIRY HERD IMPROVEMENT ASSOCIATIONS

THE KEY TO SUCCESSFUL DAIRYING

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 4, No. 10.

October, 1928.

MORE RECORDS NEEDED

A great expansion in dairy-herd-improvement association work has taken place in this country during the last few years. This has necessitated an increasingly large quantity of forms being sent from this bureau to the States. The fullest use of the forms sent out from this bureau can not be obtained unless the records are sent in for complete tabulations such as are made here. There has doubtless been some waste of forms sent out in the past to States that have not sent in their complete records for tabulation. In order to economize in the cost of printing these forms it has been decided that in the future they will be sent only to those States that furnish a reasonable percentage of the records of the cows on test. It is entirely possible for the States to obtain a large percentage of the records, as the following table shows. A number of those States with many associations demonstrate clearly that it can be done.

In order to render as much service to the various States and associations as possible, machinery was installed by this bureau some time ago for making large scale tabulations. This resulted not only in nation-wide studies being made, as has been the custom previously, but herd and association summaries and in addition a series of five yearly tabulations for each State based upon their own records. In order that that these studies may be of the greatest value, it is necessary that a large percentage of records be received from the States.

Number of Active Associations in Each of the 38 Cooperating States (January 1, 1927), and Number and Percentage of Associations from Which Records Were Received for Tabulation.

State	No. of assn's. active 1-1-27	No. of assn's. tabulated 1926-27	Percentage.	State	No. of assn's. active 1-1-27	No. of assn's. tabulated 1926-27	Percentage.
Alabama	1	1	100	Nevada	3	2	67
Arizona	1	–	–	New Hampshire	2	–	–
Colorado	5	2	40	New Jersey	11*	14	100
Connecticut	4	2	50	New Mexico	1	–	–
Georgia	1	1	100	New York	36	7	19
Idaho	9	5	56	North Carolina	5	4	80
Illinois	30	20	67	North Dakota	6	3	50
Indiana	31	26	84	Ohio	28	23	82
Iowa	77	61	79	Oklahoma	5	2	40
Kansas	13*	14	100	Oregon	9	6	67
Kentucky	2	–	–	Pennsylvania	49	24	49
Louisiana	1	1	100	South Dakota	10	8	80
Maryland	8	7	88	Tennessee	2	1	50
Massachusetts	7	4	57	Texas	1	1	100
Michigan	102	85	83	Utah	5	4	80
Minnesota	85	52	61	Vermont	23	13	57
Missouri	21	14	67	Virginia	18	4	22
Montana	7	5	71	West Virginia	3**	4	100
Nebraska	10	5	50	Wisconsin	159	123	77
Totals..					791	548	
Average							69

* Evidently some associations started about January 1, 1927 and were not listed in the directory.

** One association is credited to both Virginia and West Virginia as it operates partly in each State.

A COW TESTER'S JOB IS NOT THE EASIEST IN THE WORLD

The New Jersey Dairy-Herd-Improvement Association report for May states that the following was given at a farewell dinner to a tester resigning to enter college:

"When a Fellow Needs a Friend"

The cowtester is a hired man to 25 men.
If he slips away to see his girl one or two evenings a week
    he is a gad-about,
If he never notices the ladies he is stuck-up,
If he is quiet he doesn't talk enough -
    doesn't know enough to make suggestions.
If he is quick to make suggestions he is full of hot air
    and too fresh,
If he ever fails to hear the alarm in the morning
    he is a lazy cuss.
If his tests are lower than the creamery he doesn't
    know his business,
If they are higher than the creamery, he ought to tell
    the creamery where to head in.
If he forgets to clean his shoes he is slovenly.
If he is particular about his dress, he is a dude.
If he doesn't partake of certain food he is finnicky about his eating.
If he eats some of everything he eats too much,
If he doesn't say the Holstein is the best breed, he is a
    Guernsey man,
If he doesn't say the Guernsey is the best breed, he is a
    Holstein man,
If he mentions a good Jersey his father owned he is a Jersey man.
If he suggests a home mixed feed he is against ready mixed feeds.
If he speaks well of a certain commercial mixture, he is getting
    a rake-off from the dealer.
If he isn't he is, and if he is he isn't.
If he ain't he ought to be.

(Moral - Don't be too hard on the Cowtester.)

DAIRY HERD IMPROVEMENT ASSOCIATIONS

THE KEY TO SUCCESSFUL DAIRYING

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 4, No. 11.

December, 1928.

THE 1929 DAIRY-HERD IMPROVEMENT ASSOCIATION SUPPLIES

The distribution of the dairy-herd-improvement association supplies has been changed from an annual to a semi-annual basis. The policy of distributing a full year's supply to each State has led to overestimation of needs by some States and left only a limited reserve in the bureau to take care of other States that need additional forms. By this new method of distributing every six months a larger reserve will be maintained in this bureau. This should result in a more equitable distribution.

The rapid increase in the number of active associations in certain sections of the country has made it increasingly difficult to estimate closely the number of forms needed. It is realized that a surplus must be provided for new members taking the place of those who drop out and for training testers. The difference between the number of herd books furnished and the number of herds reported, however, has been much too great.

The bureau sent out 26,687 herd record books for the year 1927 although the directory for January 1, 1928 listed only 20,356 herds in the States using the regular dairy-herd improvement association forms. This represents a difference of 6,331 in the number of books sent and number of herds reported.

May we ask for the year 1929 the greatest economy in the use of these forms in order that we may be able to supply all those dairymen desiring the benefits of regular dairy-herd improvement associations work? The distribution, as you know, must be limited solely to members of regularly organized dairy-herd improvement associations, which are operating either on the every-month or every-other-month plan. Distribution to other testing organizations can not be made.

Germany Continues Testing Expansion

A recent issue of this letter gave a summary of the German testing associations, or "milk cow control societies", as they are called, for January 1, 1927. The following table shows the increase in the number of these societies from 1908 to January 1, 1928:

Year	Number of Societies
End of 1908	207
1911	491
1912	545
May 1914	792
End of 1922	1,058
Jan. 1 1925	1,610
" 1 1926	2,014
" 1 1927	2,245
" 1 1928	2,612

The 2,612 societies on January 1, 1928 had 50,888 members and 924,484 cows, which represents 9.8 per cent of all the cows in Germany. Each society had, on an average, 18.2 herds and 354 cows.

Certain of the provinces in Germany have a large percentage of cows on test. Danzig and East Prussia each have over 25 per cent. Oldenburg, Pommern, and Schleswig-Holstein have between 20 and 25 per cent. Mecklenburg-Strelitz, Anhalt, Mecklenburg-Schwerin, Hanover, Brandenburg, and Sachsen have between 15 and 20 per cent.

There has been a continued increase in the average production of the cows on test in these societies. From 1926 to 1927 milk production increased from 7,245 pounds to 7,766 pounds and butterfat production increased from 242.7 pounds to 253.7 pounds.

News Notes

Slogan used in Vermont dairy-herd improvement association letter.

"A Herd Sire Worth Using is Worth Keeping Alive Until Proved".

- - - - - -

On the Bull Page of the New Jersey monthly testing letter is the following parapraph that is of interest:

"A careful checkup on herd sires during the past six months reveals the fact that bulls are being kept to an older age than previously in New Jersey. A complete count is difficult but it is conservatively estimated that there are now at least 150 bulls in the state over 6 years of age. This number should double in the next two or three years. Strong bull pens are being built in many quarters and with the raising of more of the replacements and the keeping of records by more of the dairymen, the interest in saving the bulls until they are tested (proved or disproved) is bound to grow."

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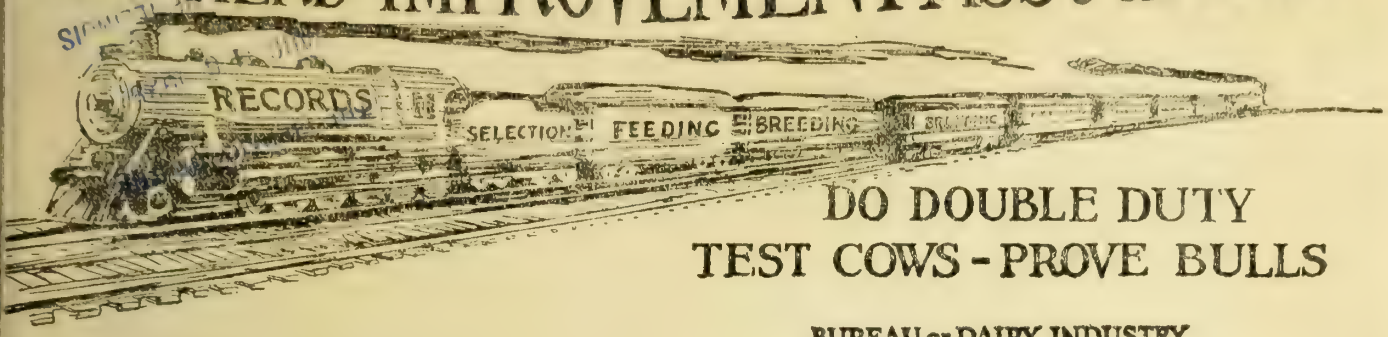
DAIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd-Imparovement Association Letter Vol. 5, No. 1

January, 1929.

SUMMARY OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1929

(as reported by dairy specialists)

A BANNER YEAR

During the past year there has been the greatest numerical increase in dairy-herd-improvement associations of any year since the organization of the first association in 1906. The summary on page 2 shows a gain of 143 associations from January 1, 1928 to January 1, 1929. The previous high gain was 135 associations from July 1, 1915 to July 1, 1916. The number of States reporting organizations has gained by 6 from January 1, 1928 to January 1, 1929. Only two States, Maine and Arkansas, are not credited with associations at present.

Nearly half a million cows are being tested each month in regularly organized dairy-herd-improvement associations. This is a gain of 50,913 cows on test for the past twelve months. The preliminary studies made on production per cow during the 1928 testing year, as given in the table on page 5, indicate that in spite of the large number of new members with previously untested herds the dairy-herd-improvement associations have been able not only to maintain their high average production, but also to increase slightly.

GROWTH OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS, 1906-1929

Up to and including 1923 data were collected on July 1. Beginning with 1924 reports are made by calendar years. Last five columns give data for January 1.

State	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29
Mich.	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	9[illegible]
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0
New York			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	5[illegible]
Vermont				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	83	101
California				1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30	35	32	31
Wisconsin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	163	154
Nebraska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23
Colorado					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	1[illegible]
Pennsylvania					1	1	2	2	7	14	19	24	21	33	64	46	45	36	42	43	49	65	7[illegible]
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	33	21	25	28	2[illegible]	3[illegible]
Washington					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12
Maryland						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8
Illinois						4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51
Minnesota						3	7	10	9	11	22	26	23	21	19	23	37	55	83	84	85	105	117
New Hampshire						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	1	7
Oregon						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14
Utah						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5
Massachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11
Virginia						2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	2[illegible]	[illegible]
Kansas								1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	2[illegible]
Indiana								2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	4[illegible]
Kentucky								1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8
Missouri									2	1	2	5	4	5	6	7	11	12	13	19	21	25	34
New Jersey									2	3	4	8	9	9	12	8	6	6	6	9	11	17	18
West Virginia									1	1	3	1	1	1	3	5	5	6	3	3	3	4	6
Connecticut									1	3	6	3	0	0	1	0	2	1	1	2	4	5	3
North Carolina									2	0	0	0	0	0	2	2	0	0	2	5	5	5	8
Louisiana									1	0	0	0	0	0	1	0	0	0	0	0	1	2	2
South Dakota									1	1	3	3	0	0	0	0	0	4	11	9	10	8	14
Nevada										1	0	1	0	0	0	1	1	4	3	1	3	0	1
Arizona											2	2	1	0	0	2	1	1	2	1	1	2	3
Rhode Island											2	2	0	0	4	4	4	3	0	0	0	0	1
Delaware											2	3	2	2	1	0	0	0	0	0	0	0	1
Idaho											2	1	1	4	5	6	4	8	8	8	9	12	13
Mississippi											1	0	0	0	0	3	2	1	1	2	0	1	1
Montana											1	2	0	0	0	0	0	2	4	3	7	7	[illegible]
Tennessee											1	8	4	6	3	3	4	2	2	2	2	3	7
New Mexico												1	0	0	0	1	1	1	0	1	1	2	2
Wyoming												1	0	1	0	0	0	0	1	0	0	0	1
Alabama													2	1	3	1	1	0	0	0	1	3	4
Georgia													1	0	0	0	0	0	0	0	1	1	2
North Dakota													1	1	1	2	6	8	5	3	6	4	7
Oklahoma														1	1	2	1	3	5	5	5	12	22
South Carolina														1	1	1	0	0	0	0	0	0	1
Texas														3	0	0	0	0	0	0	1	3	6
Arkansas															1	2	2	2	0	0	0	[illegible]	
Florida																							1
Total	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	10[illegible]

*No report.

SUMMARY OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES -- ACTIVE JANUARY 1, 1929.

State	Number of ass'ns.	Number of herds	Number of cows	Average per ass'n.		Total dairy cows (B.A.E. Ests)	Percentage of cows in D.H.I.A.'S
				Herds	Cows		
Alabama	4	70	2,685	17.5	671.2	350,000	0.8
Arizona	3	94	2,621	31.3	873.7	35,000	7.5
Arkansas	No data reported					379,000	
California	32	1,319	63,618	41.2	1988.1	602,000	10.6
Colorado	14	240	3,883	17.1	277.4	242,000	1.6
Connecticut	3	62	1,488	20.7	496.0	109,000	1.4
Delaware	1	12	115	12.0	115.0	36,000	0.3
Florida	1	4	135	4.0	135.0	78,000	0.2
Georgia	2	33	785	16.5	392.5	346,000	0.2
Idaho	13	356	4,723	27.4	363.3	170,000	2.8
Illinois	51	1,227	19,222	24.1	376.9	968,000	2.0
Indiana	41	1,001	14,934	23.8	380.5	693,000	2.2
Iowa	101	2,477	35,656	24.5	353.0	1,314,000	2.7
Kansas *	20	482	6,854	24.1	360.7	701,000	1.0
Kentucky	8	193	3,506	24.1	438.2	511,000	0.7
Louisiana	2	32	1,155	16.0	577.5	204,000	0.6
Maine	0	--	--	--	--	143,000	--
Maryland	8	169	3,712	21.1	464.0	185,000	2.9
Massachusetts	11	239	5,289	21.7	480.8	134,000	3.9
Michigan	94	2,184	25,501	23.2	271.3	849,000	3.0
Minnesota	117	2,824	39,381	24.1	336.6	1,528,000	2.6
Mississippi	1	30	535	30.0	535.0	390,000	0.1
Missouri **	34	670	11,415	20.9	345.9	827,000	1.4
Montana	8	109	2,581	13.6	322.6	175,000	1.5
Nebraska	23	564	7,410	24.5	322.2	613,000	1.2
Nevada	1	6	132	6.0	132.0	20,000	0.7
New Hampshire	7	150	3,337	21.4	476.7	77,000	4.3
New Jersey	18	432	9,620	24.0	534.4	122,000	7.9
New Mexico	2	36	1,071	18.0	535.5	65,000	1.6
New York	54	1,175	23,521	21.8	435.6	1,330,000	1.8
North Carolina	8	128	4,235	16.0	529.4	321,000	1.3
North Dakota	7	164	2,570	23.4	367.1	458,000	0.6
Ohio	39	896	11,519	23.0	295.4	917,000	1.3
Oklahoma	22	357	7,352	16.2	334.2	610,000	1.2
Oregon	14	560	12,011	40.0	857.9	216,000	5.6
Pennsylvania ***	76	1,824	26,636	24.3	355.1	855,000	3.1
Rhode Island	1	11	330	11.0	330.0	20,000	1.7
South Carolina	1	15	292	15.0	292.0	160,000	0.2
South Dakota	14	340	4,809	24.3	343.5	518,000	0.9
Tennessee	7	118	2,891	16.9	413.0	446,000	0.6
Texas #	6	--	--	--	--	936,000	--
Utah	5	231	2,330	46.2	466.0	92,000	2.5
Vermont	23	598	12,062	26.0	524.4	284,000	4.2
Virginia	20	416	11,592	20.8	579.6	364,000	3.2
Washington ##	12	300	7,070	27.3	642.7	270,000	2.6
West Virginia	6	117	1,977	19.5	329.5	219,000	0.9
Wisconsin ###	154	3,901	62,982	25.5	411.6	1,994,000	3.2
Wyoming	1	16	261	16.0	261.0	72,000	0.4
Total	1,090	26,182	465,804			21,948,000	
Average				24.3	431.7		2.1

* No. of cows given for 19 associations.

** No. of herds given for 33 associations
No. of cows given for 33 associations

*** No. of cows and herds given for 75 associations

# No. of cows and herds not reported

## No. of cows and herds given for 11 associations

### No. of cows and herds given for 153 associations.

TEN HIGHEST STATES IN DAIRY-HERD-IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS.

JANUARY 1, 1928 - JANUARY 1, 1929

Largest Number of D.H.I.A.'S.		Largest Number of Members.	
1928	1929	1928	1929
Wisconsin	Wisconsin	Wisconsin	Wisconsin
Michigan) tie	Minnesota	Minnesota	Minnesota
Minnesota)	Iowa	Michigan	Iowa
Iowa	Michigan	Iowa	Michigan
Pennsylvania	Pennsylvania	Pennsylvania	Pennsylvania
New York	New York	California	California
Illinois) tie	Illinois	New York	Illinois
Indiana)	Indiana	Illinois	New York
California	Ohio	Indiana	Indiana
Ohio	Missouri	Ohio	Ohio

Largest Number of Cows in D.H.I.A.'s.		Highest Percentage of All Cows on Test.	
1928	1929	1928	1929
Wisconsin	California	California	California
California	Wisconsin	New Jersey	New Jersey
Minnesota	Minnesota	Arizona	Arizona
Iowa	Iowa	Oregon	Oregon
Michigan	Pennsylvania	Vermont	New Hampshire
Pennsylvania	Michigan	Wisconsin	Vermont
New York	New York	Michigan	Massachusetts
Illinois	Illinois	Massachusetts	Virginia
Vermont	Indiana	Idaho	Wisconsin
Indiana	Vermont	Virginia	Pennsylvania

EVERY OTHER MONTH DAIRY HERD IMPROVEMENT ASSOCIATIONS
as reported by
STATE DAIRY SPECIALISTS.

State	No. of ass'ns.	No. of herds.	No. of cows.	Average per ass'n. Herds	Average per ass'n. Cows
labama	4	95	4,281	23.2	1,070.2
daho	2	54	647	27.0	323.5
innesota	2	99	882	49.5	441.0
issouri	2	69	609	34.5	304.5
otal	10	317	6,419		
verage				31.7	641.9

MONTHLY DISTRIBUTION OF D. H. I. A. REORGANIZATIONS

as reported on 1,071 associations.*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
umber	104	65	96	116	85	105	104	49	46	71	116	114	1,071
ercentage	9.7	6.1	9.0	10.8	7.9	9.8	9.7	4.6	4.3	6.6	10.8	10.7	100

* Eleven associations reported as operating continuously with no reorganization; month and data not reported on 8 other associations.

PRELIMINARY PROGRESS REPORT
(Association Records Received and Tabulated by this Bureau)

	Ass'ns.	Cow years	Milk (lbs.)	B'fat (lbs.)	Income above feed cost.
1926-27	522	142,084	7,410	293	$ 111.10
1927-28*	395	120,025	7,441	294	116.32

* Preliminary

OFFICIALS IN CHARGE OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES.

ALABAMA ....L. H. Stinnett, Extension Service, College of Agriculture, Auburn.
F. W. Burns, Extension Service, College of Agriculture, Auburn.
ARIZONA ....Clyde F. Rowe, Extension Service, College of Agriculture, Tucson.
ARKANSAS ......W. H. Woodley, Extension Service, College of Agriculture, Fayetteville

CALIFORNIA ....G. E. Gordon, Extension Service, College of Agriculture, Berkeley.
COLORADO ......C. A. Smith, c/o State Dairy Commissioner, Fort Collins.
CONNECTICUT ...A. R. Merrill, Extension Service, Connecticut Agricultural College, Storrs.

DELAWARE ......C. A. McCue, Director of Extension, School of Agriculture, Newark.

FLORIDA ....H. L. Brown, Extension Division, College of Agriculture, Gainesville.

GEORGIA ....F. W. Fitch, Ext. Div., Georgia State College of Agriculture, Athens.

IDAHO ....D. L. Fourt, State House, Boise.
ILLINOIS ......C. S. Rhode, Extension Service, College of Agriculture, Urbana.
J. H. Brock, " " " " " "
INDIANA ....G. A. Williams, Dept. of Agri. Ext., School of Agriculture, Lafayette.
IOWA ....Floyd Johnston, Agr. Ext., Iowa State College of Agriculture, Ames.
" " " " " " " "
Floyd Arnold " " " " " " " "

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LOUISIANA .....E. W. Neasham, Extension Department, A. & M. College, Baton Rouge.

MAINE ....R. F. Talbot, Extension Service, College of Agriculture, Orono.
MARYLAND ......J. A. Conover, Extension Service, College of Agriculture, College Pk.
MASSACHUSETTS..C. J. Fawcett, Extension Service, Mass. Agri. College, Amherst.
MICHIGAN ......A. C. Baltzer, Extension Service, Mich. Agri. College, East Lansing.
" " " " " " "
R. E. Horwood, Marquette, Mich.
MINNESOTA .....Ramer Leighton, Agri. Ext., College of Agri., University Farm, St. Paul
C. E. Geddes " " " " " " " " "
" " " " " " " " "
MISSISSIPPI....L. A. Higgins, Extension Service, A. & M. College.
MISSOURI ......M. J. Regan, Agri. Ext. Service, College of Agriculture, Columbia.
A. F. Stevens, " " " " " " "
MONTANA ....J. O. Tretsven, Ext. Ser., Montana State College of Agri., Bozeman.

NEBRASKA ......M. L. Flack, Extension Service, College of Agriculture, Lincoln.
NEVADA ....V. E. Scott, Agricultural Extension, College of Agriculture, Reno.
NEW HAMPSHIRE..G. L. Waugh, Extension Service, College of Agriculture, Durham.
NEW JERSEY ....E. J. Perry, Division of Ext., State College of Agri., New Brunswick.
R. C. Connelly, " " " " " " " " "

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NEW YORK ....G. W. Tailby, Jr., Extension Service, N.Y. State College of Agriculture, Ithaca.
NORTH CAROLINA.. J.A. Arey, Ext. Ser., N.C. State College of Agriculture, State College Station, Raleigh.
NORTH DAKOTA ....A.M. Challey, Agri. Ext., N.Dak.Agricultural College, Agricultural College.

OHIO.............Ivan McKellip, Agri. Ext. Work, College of Agriculture, Columbus.
OKLAHOMA.........J.W. Boehr, Extension Service, Okla. Agricultural College, Stillwater.
OREGON...........N.C. Jamison, Extension Service, Oregon Agricultural College, Corvallis.

PENNSYLVANIA.....C.R. Gearhart, Agricultural Extension,School of Agri., State Col.
I.O. Sidelmann, " " " " " " "

RHODE ISLAND.....H.Burdick, Rhode Island State College, Kingston.

SOUTH CAROLINA...J.P. LaMaster, Extension Service, Clemson Agri. College, Clemson College.
SOUTH DAKOTA.....G. Heebink, Ext. Div., S.Dak. State College of Agriculture, Brookings.
TENNESEE......... C.A. Hutton, Agricultural Extension, College of Agriculture, Knoxville.
TEXAS ...........J.L. Thomas, Extension Service, A. & M. College of Texas, College Station.

UTAH.............William Peterson, Director of Extension, Agricultural College of Utah, Logan.

VERMONT..........E.H. Loveland, Extension Service, College of Agriculture, Burlington.
VIRGINIA.........F.A. Buchanan, Extension Division,Va. A. & M. College, Blacksburg.

WEST VIRGINIA....J.V. Hopkins, Extension Division, College of Agriculture, Morgantown.
WASHINGTON.......Roy C. Jones, Extension Service, State College of Agriculture, Pullman.
WISCONSIN .......A.J. Cramer, Agri. Ext. Service, College of Agriculture, Madison.
H.C. Searles, 150 S. Hickory Street ,Fond du Lac.
Erwin Sutton, Augusta.

WYOMING..........J. R. Neale, Agri. Ext., College of Agriculture, Laramie.

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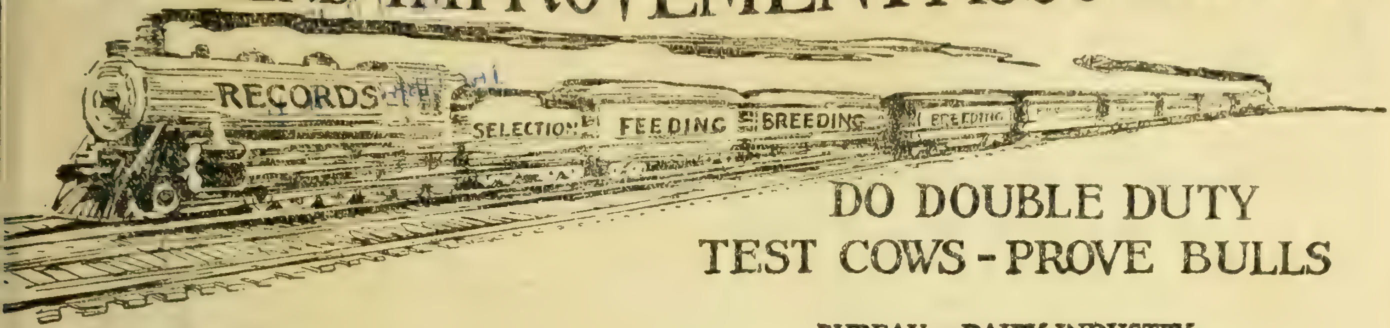
DAIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd-Improvement Association Letter Vol. 5, No. 2

February, 1929.

THE DEADLINE -- MARCH 31, 1929.

Last spring a precedent was established -- that of starting the special State studies of dairy-herd improvement association records on April 1 instead of July 1. The principal reason for this was to be able to complete these studies at an early enough date so that the State dairy specialists could use the material in their fall meetings and exhibit work. By starting the studies on July 1, a majority of them were not completed until October -- too late for the most effective use in the above mentioned ways.

The studies planned are similar in nature to those made last year. The subjects upon which these studies will be made are:

1. Relation of Milk Production to Other Factors
2. Relation of Butterfat Production to Other Factors
3. Relation of Time of Freshening to Other Factors
4. Comparison of Purebreds and Grades
5. Relation of the Cost of Grain to Other Factors

It will be readily understood that in studies of this kind the number of records plays an important part. Studies made from only a small number of records may be misleading because individual variations have a relatively large effect. For those States having only a small number of records, therefore, all of the above named studies will not be made.

All the records received in this bureau by March 31 for the testing year 1927-28 will be included in these studies for those States having a sufficient number of records. From records of that testing year received after March 31 herd and association summaries will be made but not State tabulations.

For the testing year 1926-27 the records from 576 associations were received. Of these 422 were received prior to January 1, 1928; 110 between January 1 and March 31; and the remaining 44 associations after April 1. For 1926-27, therefore, 7.6 per cent of the records were not received in time to be included. Although this is a small percentage, it is hoped that it will be even less this year.

THE BUSINESS OF DAIRYING

The Montana Dairy-Herd Improvement Association report for January, 1929, contains a most interest article on "The Business of Dairying," which we are taking the liberty of reprinting.

"Modern dairy farming is a highly developed industry, requiring as much managerial ability as the successful operation of a store, garage, or bank. The successful dairyman takes pride in his good farm and his fine herd of cattle. He is a student in his business, always eager to gain information that will be of help to him.

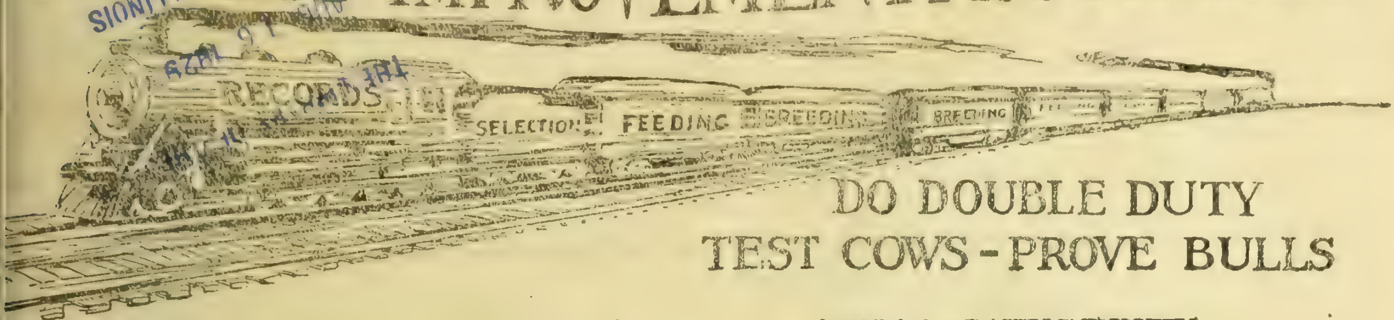
"Too many people look at dairying as a tedious, confining job for the unskilled, -- no special thought, training, or experience being required. To them it is only drudgery. No one who has ever had experience on a dairy farm will deny that dairying requires work. But it is equally true that real, managerial ability plays a big part in reducing the drudgery and in increasing the income. The man who feels that there is nothing to learn from reading good dairy papers or discussing dairy problems at community meetings as a rule gives little thought to finding better methods and more effective ways of conducting his business. In most of these cases dairying is not only unprofitable but a daily grind of uninteresting work.

"To show what effect interest and study will have upon the economical side of dairying, the results of a survey conducted many years ago are given. It was found that the farmers who read good dairy papers had an average butterfat production of 185 pounds per cow compared with 136.7 pounds for the farmers who read no dairy papers. While there were other factors tha influenced the production, it is important to note that the men who had enough interest in their work to read good dairy papers managed to get 48.3 pounds more butterfat per cow.

"I once knew a bright young man who had a great desire to learn about dairy farming. After his day's work he would sit up evenings reading dairy literature, while the farmer he worked for rarely read anything except stories and the news in the local paper. This farmer could see nothing in dairying except hard work. To him it was foolishness to sit up evenings reading farm papers. However, he frequently grumbled about not getting as much out of his cows as his neighbor, who was adopting better dairy practices. Here were two types of men: The hired man, a coming dairyman, the employer, a going dairyman. Like hundreds of successful dairymen, this hired man had a vision ahead. He knew his success would depend upon a more thorough knowledge of the business. Dairying to him meant a noble type of business, in which he could give his best thought and effort."

There is no question but that dairy-herd improvement association members are interested in the business of dairying. That they are eager to gain all the information possible concerning their business is evidenced by their joining such an association. Ample opportunity for acquiring information is furnished through a study of the feed and production records of their herds. Furthermore, they have the advantage of the advice and assistance of a competent tester.

DAIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Dairy-Herd Improvement Association Letter Vol. 5, No. 4.

April, 1929.

Finland Continues to Develop Testing.

A recent report from Finland shows 623 control societies (dairy-herd improvement associations) for the 1926-27 testing year. These associations had 13,018 members owning 176,890 cows. This is a gain of 80 associations over the previous year. The average production of these tested cows was 5,623 pounds of milk and 222 pounds of butterfat, which is a gain of 11.2 pounds of butterfat over the previous year.

Progress of the Proved Sire Work

Table 1 gives a resume of the proved sire work in this country to January 1, 1929. On this date 635 bulls had been proved through the records of dairy-herd-improvement associations. Two hundred and thirty-eight of these bulls were proved during 1928. Even though this is a rather small number of bulls to be proved, considering that there were 947 active dairy-herd-improvement associations on January 1, 1928, it does show, however, that a good start has been made.

Table 2 shows the States in which bulls were proved during 1928 and the number of bulls proved in each State. The 238 bulls proved were distributed among 20 States, which is less than half the number reporting dairy-herd improvement associations for that year.

Table 1.-Summary of bull proving work in the country to January 1, 1929.

State	No. Assn's. active Jan. 1, 1928	Number Bulls Proved												
		Totals			Living or dead			Breed						
		To Jan. 1 1928.	During 1928	To Jan. 1 1929.	Living	Dead	No report	H.	G.	J	A	B.S.	S.H	R.
Alabama	3													
Arizona	2													
Arkansas	2													
California	32													
Colorado	9	1		1		1		1						
Conn.	5													
Georgia	1													
Idaho	12	15	14	29	13	10	6	13	3	13				
Illinois	34	17	1	18		16	2	13	3	2				
Indiana	34	8	8	16	4	12		5	3	8				
Iowa	86	21	10	31	5	20	6	16	10	3		1		1
Kansas	14	18	8	26	4	17	5	22		3	1			
Kentucky	0	2		2		2		2						
Louisiana	2													
Maryland	7	3	3	6	1	2	3		6					
Mass.	9													
Michigan	105	49	38	87	10	68	9	36	17	32		1		1
Minnesota	105	20	4	24	2	8	14	11	10	1			1	1
Miss.	1	4		4		1	3			4				
Missouri	25	9	8	17	4	9	4	2	2	13				
Montana	7		1	1		1		1						
Nebraska	17	2		2		1	1	2						
Nevada	0	4		4	1	3		4						
New Hamp.	4	1		1		1		1						
New Jersey	17	2	4	6	1	4	1	4	2					
New Mexico	2	1		1	1				1					
New York	42	1		1		1				1				
N. Carolina	5													
N. Dakota	4	7	1	8	2	4	2	8						
Ohio	29	10	3	13		7	6	4	4	5				
Oklahoma	12		1	1	1			1						
Oregon	11	2		2	1	1				2				
Pa.	65	25	26	51	10	40	1	32	4	11	4			
S. Dakota	8	11	2	13	2	7	4	10		3				
Tennessee	3		1	1			1			1				
Texas	3													
Utah	5	2	4	6	2		4	6						
Vermont	25	31	13	44	9	31	4	12	4	27	1			
Virginia	20	8		8		7	1	1	3	4				
Washington	10													
W. Virginia	4													
Wisconsin	166	123	88	211	22	139	50	128	55	17	2	3	6	
Totals	947	397	238	635	95	413	127	335	127	150	8	5	7	3

Table 2.-States in which bulls were proved during 1928 and number of bulls proved in each State.

State	Number Bulls Proved										Total
	Dead or Living			Breed							
	Dead	Alive	No Report	H.	G.	J.	A.	B.S.	S.H.	R.P.	
Idaho	3	4	7	7	1	6					14
Illinois		1		1							1
Indiana	5	3		2	1	5					8
Iowa	3	2	5	3	5	1				1	10
Kansas	3	1	4	7		1					8
Maryland	2	1			3						3
Michigan	22	4	12	16	7	14				1	38
Minn.	1		3	2	1					1	4
Missouri	3	2	3			8					8
Montana	1			1							1
N. Jersey	1	1	2	2	2						4
N. Dakota	1			1							1
Ohio	1		2		2	1					3
Okla.		1		1							1
Pa.	19	4	3	16	3	4	3				26
S. Dakota	2			2							2
Tenn.			1			1					1
Utah		2	2	4							4
Vermont	4	2	7	4	1	8					13
Wisconsin	46	11	31	53	24	4	2	2	3		88
Totals	117	39	82	122	50	53	5	2	3	3	238

News Notes

Several States held regional and State conferences of testers this month. Kentucky held a State conference at Lexington on April 20. Iowa had a series of seven regional conferences from April 2 - 26. Illinois had eight regional conferences in the two-week period, April 9-20. Pennsylvania held a series from April 24 - May 1. New York conferences are being held April 29 to May 8.

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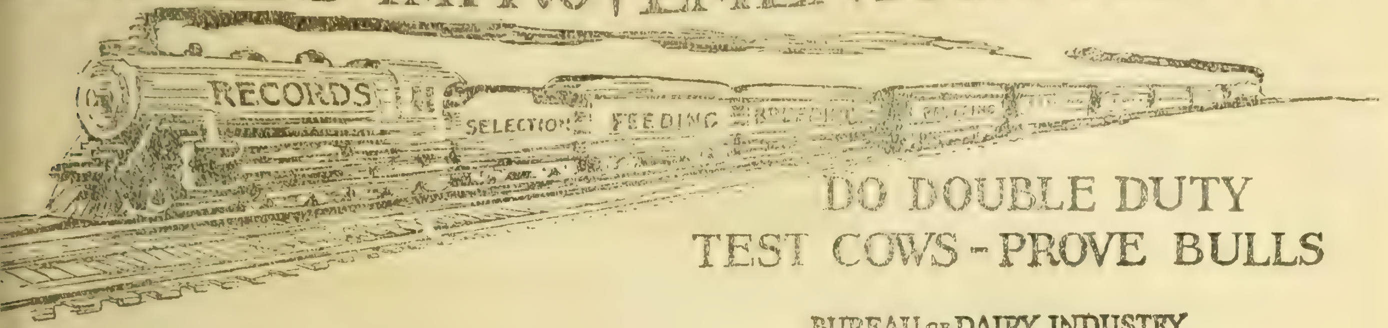

DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Dairy-Herd-Improvement Association Letter Vol. 5, No. 5

May, 1929.

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REORGANIZATION

The Bureau of Dairy Industry and the Office of Cooperative Extension Work have joined hands in inaugurating dairy extension field work in all parts of the United States. This work, like all other extension activities of the Department of Agriculture, will be carried on in cooperation with the Extension Service of the State agricultural colleges. This is a forward movement in dairy extension that promises far-reaching results.

J. B. Parker, who has had charge of much of the field work in connection with dairy-herd-improvement associations, has been appointed dairy extension specialist in the Eastern States. J. H. McClain, who has been in charge of dairy introduction, has been appointed as dairy extension specialist in the Southern States. Both will continue to have headquarters with the Bureau of Dairy Industry in Washington.

The project formerly called Dairy Introduction has been abolished. The investigational work of that project, in so far as it relates to dairy-herd improvement and bull associations, now constitutes a new division, known as the Division of Dairy-Herd-Improvement Investigations with Dr. J. C. McDowell as Chief. This division will be responsible for investigations regarding the organization and operation of dairy-herd-improvement and bull associations, for investigations of all short-cut methods of testing, for investigations of production of dairy cows on test in dairy-herd-improvement associations and for comparative production of dams and daughters. It will also be responsible for analyzing data from the records of dairy-herd-improvement associations, interpreting these data, and publishing the results.

STATE TABULATIONS

As in former years the following tabulations of 1928 State records are being furnished each State:

1. Relation of Milk Production to Other Factors.
2. Relation of Butterfat Production to Other Factors.
3. Relation of Cost of Grain to Other Factors.
4. Relation of Time of Freshening to Other Factors.
5. Comparison of Purebreds and Grades. (Two tables: one for purebreds and one for grades)

These tabulations have already been sent to some of the States, and it is expected that all will be sent out before the end of May. A letter accompanies each set of tables. This letter calls attention to some of the conclusions that may be drawn from the tabulations, but no attempt is made to give a complete analysis. It is believed that these tabulations and a thorough analysis of the same will be worth publishing in bulletin form in those States that have furnished a large number of records.

LIVING PROVED BULLS

The dairy-herd-improvement association records for 1928 proved 238 bulls through a comparison of the production records of the daughters of each bull with the records of their dams. In answer to a questionnaire sent to the owners of these bulls, 39 were reported alive and 117 dead. No reports were received concerning the remaining 82. Of the 156 bulls from which reports were received only ~~about~~ one bull in ~~five~~ 4 was living when proved. That is not a good record.

If the proved-bull work is to be worthwhile, some way must be found to keep the registered bulls alive until they are proved and then to keep the meritorious proved bulls in extensive use as long as they live or are fit for service.

In a few associations as many as eight bulls have been proved in a single year. If each association could prove one living bull a year, more than 1,000 bulls each year would be proved in this country.

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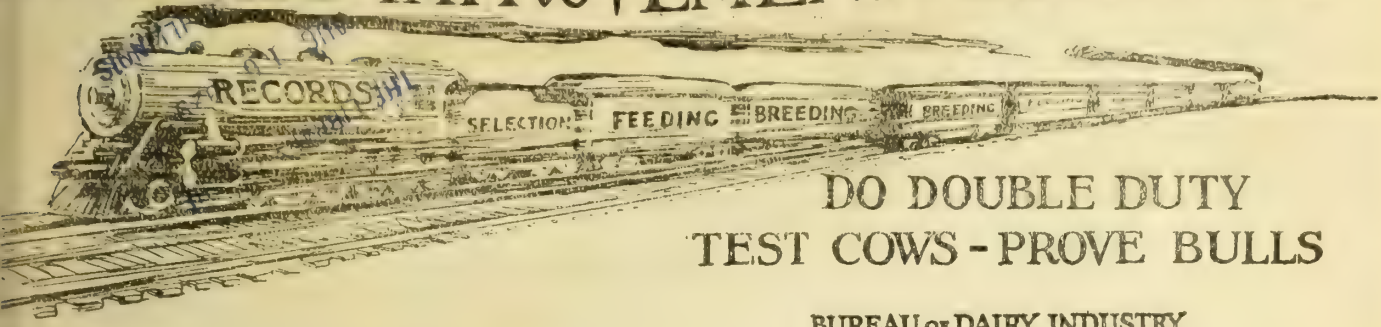

DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 5 No. 6

June, 1929.

The Magnitude of Dairy-Herd-Improvement-Association Work.

If the average yearly production of the dairy cows in this country could be increased from 4,600 pounds of milk to 7,457 pounds, which is the present average of the cows on test in dairy-herd-improvement associations, we could supply the present per capita consumption of dairy products from 14 million instead of 22 million dairy cows. Feed for these higher-producers would cost more per cow but a great saving in total feed, in labor, and in overhead expenses would result. Besides this, fewer calves would have to be raised for replacement. It is estimated that the total saving from the use of such cows would amount to half a billion dollars per year.

Because of the probable increase in demand for dairy products it is not likely that we shall need to reduce the total number of dairy cows. It seems, however, well within the range of possibility to so improve our dairy herds that the same number of cows we now have will furnish enough dairy products to meet the demand even if the population increases from 120 million to 200 million people. This should result in a saving of much more than 500 million dollars.

As the years go by, it is possible for the dairy-herd-improvement associations to save each year a bigger slice of that 500 million dollars. Certainly we have before us one of the biggest undertakings in the dairy world today. To accomplish the greatest results in the least possible time, this work must be attacked with vim, vigor, and energy. Let's all get busy.

Proved Bull Work is on the Gain

Our readers may be interested to know that from January 1 to May 31 of this year 150 registered dairy bulls were proved as compared with 89 for the same period of last year. The comparative figures by months are as follows:

	Proved Bulls	
	1928	1929
January	33	33
February	16	21
March	21	33
April	10	31
May	9	32

These figures show that a better start has been made this year than last year.

Ages at Which 124 Proved Bulls Were Disposed of

A study has just been made of 124 proved bulls showing the ages at which they had been disposed of. None of these bulls were disposed of for breeding purposes or because they were reactors or for natural causes, such as injury.

The ages of these bulls were as follows:

Age	No. of Bulls	Age	No. of Bulls
3 yrs.	12	9 yrs.	2
4 "	46	10 "	1
5 "	30	11 "	2
6 "	10	12 "	1
7 "	10	14 "	1
8 "	9		
		Total	124

Of the 124 bulls studied, 88, or 71 per cent, were disposed of before the age of five years. One hundred seventeen, or about 94 per cent, were disposed of before the age of 8 years. Two bulls were kept until 11 years of age and one bull until 14 years old.

Disposing of such a large percentage of dairy bulls before their true value can be ascertained by means of dam and daughter comparisons is one of the big losses in the dairy industry.

What is a Proved Bull?

What is meant by the term "proved bull"? This expression does not have the same meaning to every one. Even the dictionary definition of the word "prove" gives a variety of meanings. In defining the word, "Webster's International dictionary says: "To test or verify, to try, to ascertain, to justify".

It seems from these definitions as though the term "proved bull" is broad enough to include both inferior and meritorious bulls. To many people, however, the word "proved" carries with it only the idea of merit, and is used by them, therefore, only in connection with meritorious bulls.

In dairy-herd improvement association work, the word "proved" is applied to all bulls having five or more unselected daughters whose yearly production records have been compared with the yearly production records of the dams of the daughters. One suggestion is that the term "proved" be continued in use in this way and that the word "approved" be used in referring to meritorious bulls and the word "disproved" in referring to inferior bulls.

The question now arises: What is the difference between a meritorious and an inferior bull? Not all bulls whose daughters produce more than their dams can be classed as meritorious. Neither can all bulls whose daughters produce less than their dams be classed as inferior. For example, if the average production of the dams is 150 pounds of butterfat a year and the average of the first five daughters is 160 pounds of butterfat a year, is this bull to be classed as a meritorious bull and another classed as an inferior bull if his first five daughters average 490 pounds of butterfat a year when he is mated with cows that average 500 pounds? Yet it is obvious that there should be some way of distinguishing between the bulls that are meritorious and those that are not.

Another suggestion is that bulls be classed as meritorious when they have demonstrated their ability to hold production at a level of 300 pounds or more. This suggestion was made on the assumption that the sire and dam have an equal influence in determining the production records of the daughters. Some investigators, however, disagree with this.

Still another suggestion has been made that the bulls now called "proved" be called "tried", that the term "proved bull" be reserved for the meritorious bull, and that to get into this class the records of dams and daughters must have demonstrated the bull's ability to hold butterfat production at 300 pounds or more.

Do any of these ideas meet with your approval? The Division of Dairy-Herd Improvement Investigations would like to get the opinion of others regarding the answer to the question, WHAT IS A PROVED BULL?

Bull Association Summary

Late returns on information regarding the bull associations as of January 1, 1929 give the following corrected figures:

Number of Associations	339
Number of Members	6,286
Number of Bulls	1,533
Number of Purebred Cows	10,026
Total number of Cows	44,511.

Timely Telegrams

To some persons a pasture is a fenced in portion of the earth's surface on which grass doesn't grow.

The ideal pasture for a dairy herd contains grasses and one or more legumes, begins its growth early in the spring, grows luxuriantly throughout the spring and early summer, continues to furnish feed abundantly during the late summer and early fall, and does not stop growing until heavy frost and snow drive the cattle into winter quarters.

An old Quaker sold a cow that he claimed gave five gallons of rich milk every day. When the buyer complained that the cow did not do this the Quaker replied: "Thee should have bought my pasture too."

On many dairy farms the cattle roam over worthless pastures on worn-out soils. Such pastures furnish a fair athletic field for the cows and very little more.

Some farmers say that cows flesh up on rich summer pasture after having wintered at a straw stack. Sam Jones says that it takes his cows all winter to recover from the effect of scanty summer pasture.

Some dairy farmers center their attention on field crops, forgetting that pasture is one of the most important of all crops on the dairy farm. Let us give more time and attention to the improvement of pastures for the herds on test in dairy-herd improvement associations.

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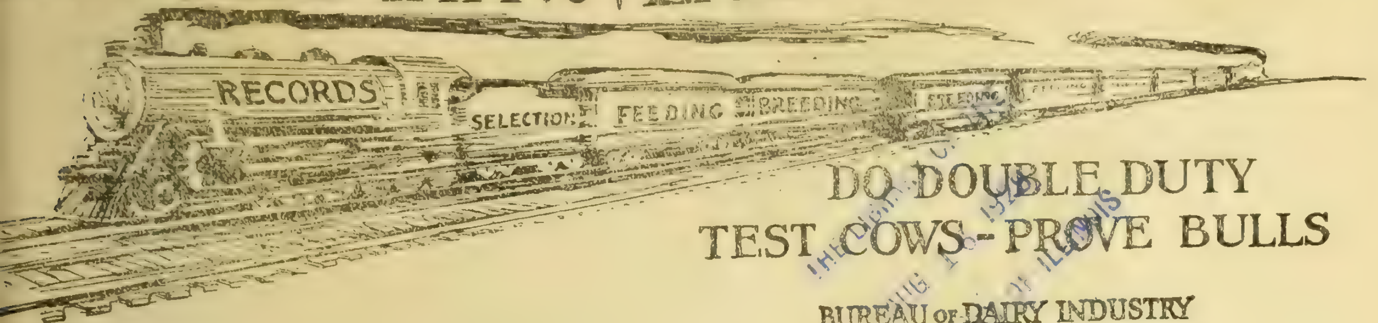

DO DOUBLE DUTY
TEST COWS - PROVE BULLS

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Dairy-Herd Improvement Association Letter Vol. 5, No. 7.

July, 1929.

BI-MONTHLY TESTING FOR PRODUCTION

At the present time there is a widespread interest in the reducing of the cost of testing cows for economical production of milk and butterfat. As a rule, however, we have to pay for what we get. If we cut the cost we must expect some decrease in efficiency. It has been advocated that testing one day in two months or one day in three months would furnish satisfactory records. The figures in Table 1 were obtained by comparing the butterfat calculated by frequent and infrequent testing with actual production.

Number 1 is the method used at present in the regular dairy-herd improvement associations. Number 5 is the method used in the bi-monthly dairy-herd improvement associations. The methods mentioned under 2, 4, 6, and 7 are not in regular use but are given here as a matter of information. On January 1, 1929 there were 1,090 associations testing cows under method number 1, and 10 associations operating under method number 5. The average error for butterfat under method number 1 seems to be a little less than 3 per cent and under number 5 a little less than 4 per cent. In those districts where the herds are so small that monthly testing is costly, it may be well to reduce the cost by testing one day in two months. In obtaining the figures given, the testing day was the center of the testing period; that is, the testing period extended the same distance each side of the testing day. No matter what method is used the testing day must be the center of the testing period. In all the methods the samples are taken and the testing is done by a disinterested party.

Table 1.-Error in Yearly butterfat production based on different methods of calculation, in comparison with actual production.

Method number	Frequency of testing	Average error	Times in 70 error was 5% or more	Widest variation of any individual record
		Per Cent	Number	Per Cent
1	Milk weighed and tested one day each month	2.91	16	8.3
2	Milk weighed one day each week and milk tested one day in two months	3.12	15	10.7
3	Milk of every milking weighed and milk tested one day in two months	3.01	12	9.1
4	Milk of every milking weighed and milk tested one day in three months	4.59	25	20.0
5	Milk weighed and tested one day in two months	3.80	24	12.5
6	Milk weighed and tested one day in three months	6.78	42	21.5
7	Milk of every milking weighed and milk tested one day each month	2.35	4	10.7

THE STATE TABULATIONS

The State tabulations for 1928 have all been sent out. These include the following:

1. Relation of milk production to other factors.
2. Relation of butterfat production to other factors.
3. Relation of time of freshening to other factors.
4. Comparison of purebreds and grades.
5. Relation of cost of grain to other factors.

The tabulations giving the relation of milk production and of butterfat production to other factors always shows that high production was accompanied by large income over cost of feed. As a rule the high producers were fed liberally but they produced so much that they were always the when there were enough records to furnish a satisfactory comparison.

As a rule the cows that freshen in the fall won out in production and in income over cost of feed. Generally winter freshening won second place, spring freshening third place, and summer freshening fourth and last place. The differences, however, on this subject, were less maeked for the testing year 1927-28 than usual.

For most States the purebreds excelled the grades in production and in income over cost of feed by a small margin. As a rule they were fed more in dollars worth of feed per cow. The figures indicate, however, that it might be well to cull some of our purebred herds a little closer.

As a rule production and income over cost of feed per cow advanced as cost of grain increased from group to group. It was interesting to observe, however, that cows fed high on legumes sometimes gave wonderful results with little or no grain. So far no comprehensive study of the feeding of the 465,000 cows on test has been made but it is hoped that progress with that subject will be made in the near future.

It is hoped also that next year one or two new tables may be added to the State tabulations. Perhaps these should include a comparison of dairy sires. The records of the daughters of a dairy sire when compared with the records of their dams seem to prove the sire with as great a degree of accuracy as the records of the cows prove the value of the cows.

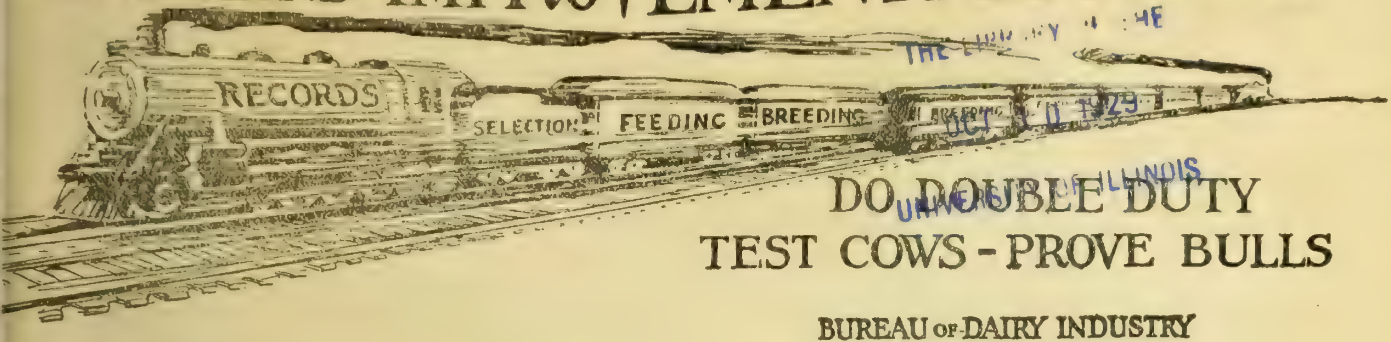
The Final Figures for 1927-28.

These figures differ but slightly from the preliminary figures given out earlier. As the tabulations are now complete there probably will be no further change.

Total number of associations -------------------	1,090
Number of associations where records were received and tabulated ----------------------	656
Number of cow-years for records tabulated ------	201,590
Average milk production per cow year -----------	7,464 lbs.
Average test ----------------------------------	3.9 %
Average butterfat production ------------------	295 lbs.
Average yearly gross income per cow ------------	$193
Average cost of roughage per cow --------------	$39
Average cost of grain per cow -----------------	$38
Average total cost of feed per cow ------------	$77
Average yearly income over cost of feed per cow	$116

When will the average butterfat production per cow be above 300 pounds? As production advances it becomes increasingly more difficult to push it higher.

DAIRY HERD IMPROVEMENT ASSOCIATIONS



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WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 5, No. 9

September 1929

EXHIBITS AT THE NATIONAL DAIRY SHOW

Several exhibits by the Bureau of Dairy Industry at the National Dairy Show this year will be of interest to both the producer and consumer.

Which Job Do You Want?

One exhibit shows the difference in income over cost of feed between low and high-producing cows. On one side of the booth are shown 13 cows that returned a yearly income over cost of feed of $182. On the other side is shown one cow that returned the same amount over cost of feed. Certainly no dairyman would dnowingly milk and feed 13 cows when one will return the same profit. This exhibit is based on the records of more than 100,000 cows in dairy-herd-improvement associations.

The Bull Exhibit

A bull exhibit stresses the importance of the selection of the sire, particularly for the high-producing herd. The exhibit is based on a study of 700 sires used in dairy-herd improvement associations and shows that as butterfat production per cow advances, bulls of greater merit are needed to increase production of daughters over dams.

For low-producing herds it may be satisfactory to select bulls on the strength of type and pedigree, but for herds averaging 300 pounds of butterfat or more only bulls of outstanding merit should be selected.

These facts are demonstrated in a mechanical way in the exhibit by means of ten bulls starting up an inclined runway. As the bulls reach the limit of their ability to increase production, they drop out. Only the best bulls reach the top.

Dairy Type and Beef Type Compared

Another exhibit shows some of the results obtained from a study of the external anatomy and the skeletal structure of a highly specialized dairy cow, a highly specialized beef cow, and a dairy bull.

Photographs show the cross structure of the udders of the two types of animals. The dairy cow's udder was composed almost entirely of secreting tissue, while the beef cow's udder had only a very small area of secreting tissue directly above the teats, imbedded in a large mass of fat.

A chart gives in detail the most striking points of difference in the skeletal structure, the mamary development, and internal anatomy of the two cows.

Milk Production

This exhibit stresses the economic value of quality in milk production, not only in the process of milking but also in the condition and structure of the barn and milk house and the type of equipment. The outstanding features are a mechanical cow being milked by a mechanical man and since quality products play an important part in successful dairying, this exhibit is of value to every producer.

Utilization of Dairy By-Products in Cooking

This exhibit is particularly interesting to the baker, restaurant proprietor and housewife. A kitchen will be a part of the exhibit, where bread, cakes, waffles, etc. will be made both with and without the use of skim-milk and other dairy by-products. How to use them will be demonstrated, and samples will be on display.

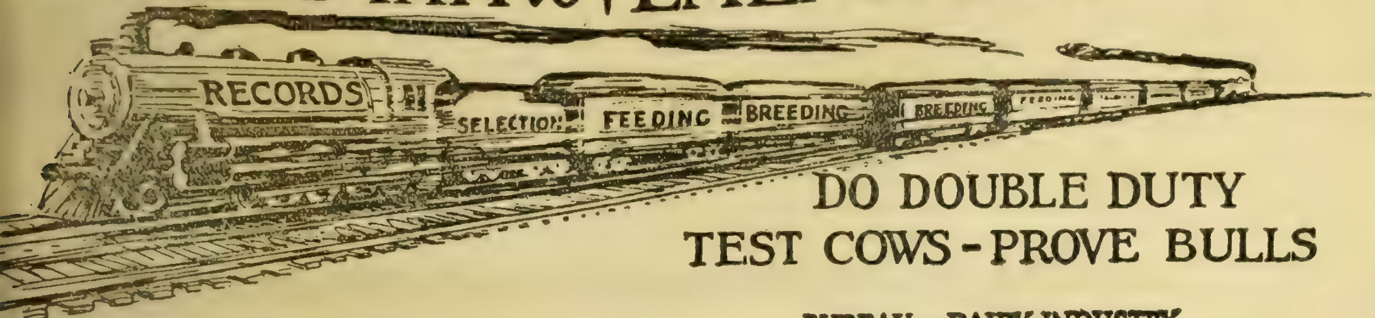
A HIGHER BUTTERFAT TEST FOR THE HERD

A preliminary tabulation has been made of 3,955 yearly dairy-herd-improvement association records of registered Holsteins to show the variation in butterfat test. There were 2,176 records with a butterfat test of 3.4 per cent or less; 1,544 with a test between 3.5 and 3.9 per cent inclusive; and 235 with a test of 4.0 per cent or more. The average butterfat test of all the records was 3.4 per cent.

From these figures we may conclude that selection of registered Holstein cows on the basis of the butterfat test may be made to play an important part in building up a higher testing herd. As the butterfat test advanced from group to group there was, as a rule, an increase in average butterfat production per cow and a decrease in average milk production per cow. The figures, however, indicate that it is possible, through closer culling, to acquire a registered Holstein herd having both high milk production and high butterfat test.

Later on, tabulations of sire records will be made to show to what extent the butterfat test has been increased through the herd bulls in use in dairy-herd-improvement associations. Through selection and breeding it may be possible to raise the production of the dairy herd almost as we please within reasonable limit.

DAIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

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Dairy-Herd Improvement Association Letter Vol. 5, No. 10

October 1929

RELATION OF SIZE OF HERD TO BUTTERFAT PRODUCTION

A study of the relation of size of herd to butterfat production has recently been made by the Bureau of Dairy Industry. Although the herds ranged in size from two to several hundred cows, they averaged ~~only~~ about 13 ~~five~~ cows. It was possible, therefore, to assemble the records of only a few large herds, but 20,000 herds ranging from 2 to 30 cows were studied. These herds were divided into groups to 2, 3, 4, etc. cows in a herd, and there were more than 100 herds in each group.

The figures show that on the average the herds in groups from 2 to 10 cows had a production of butterfat per cow of 316 pounds, those from 11 to 20 averaged 289 pounds, and those composed of 21 to 30 cows averaged 286 pounds. This shows that the herds of 10 cows or fewer produced 27 pounds of butterfat per cow more than the 11 to 20 cow herds and 30 pounds more per cow than the 21 to 30 cow herds.

The records further showed that for every group from 2 to 10 cows the average butterfat production was above 300 pounds per cow, while for every group from 11 to 30 cows the average production was below 300 pounds.

There is nothing in the records to indicate why the herds of 10 cows or fewer produced more than the larger sized herds. It may be the result of better individual care and feeding or closer culling, or both.

PROVED SIRES THAT ARE BEING DISPOSED OF ARE NOT ALWAYS THE POOR ONES

On September 1, 1929 the Bureau of Dairy Industry had proved 834 bulls through the tabulations made of the dairy-herd improvement association records. Of these 834 bulls, 126 were reported to be alive, 531 dead, and no authentic information was available concerning the remainder. Only one bull in six, therefore, was alive at the time the bulls were proved.

A study of these records showed that on an average the daughters of the living sires produced only 301 pounds of milk and 17 pounds of butterfat more than the daughters of the dead sires. Evidently it was not always the poor bulls that were disposed of.

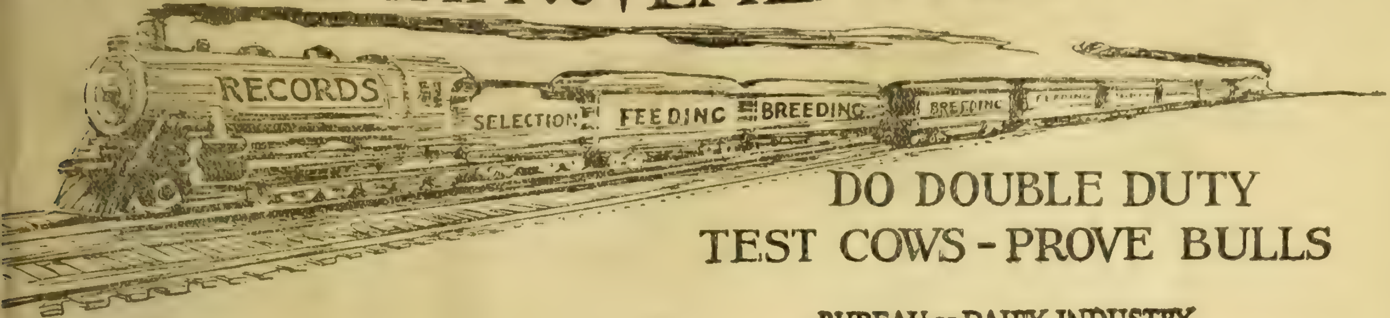
Since no one can tell, before a bull is proved, whether or not he will be worthy or unworthy, all of them should be kept alive until proved. After they are proved, the unworthy should be disposed of at once and those that have been proved valuable should be kept in use as long as they are fit for service. It is only the outstanding proved bulls that can be depended upon to increase the production of our dairy herds.

INFORMATION RELATIVE TO PARTLY PROVED BULLS

In the past the Bureau of Dairy Industry has not reported the records of a sire used in a dairy-herd improvement association until the records of five of his daughters were available to compare with the records of their dams.

In view of the fact that a large number of bulls are disposed of before they are proved, the bureau is now planning to return to the State dairy specialists not only the information on proved bulls but also on partly proved bulls as soon as possible after the records have been tabulated. It is hoped that this additional service will help the dairy specialists in their efforts to encourage owners to keep the bulls until proved.

DAIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter Vol. 5 No. 11

NOVEMBER, 1929

GETTING RECORDS IN EARLY

An attempt is being made this year to get in as early as possible the records for the associations completing their testing year in 1929. All the records of one State have already been sent in, and information has been received by the bureau to that effect. Tabulations of the records for this State will be made in December so that they will be available for early use. Tabulations will be made for each State as soon as all its records are received. It is essential, however, before tabulations are made, that notice be sent to the bureau that all the records from a State have been sent in.

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THE 1929 YEARBOOK

Data are now being assembled for the 1929 Yearbook of the U. S. Department of Agriculture. The 1928 Yearbook gives a table showing the number of associations by States for each year since the work began in 1906, up to and including January 1, 1929. The Bureau of Dairy Industry has just been informed that if the 1929 Yearbook is to include the number of associations in each State for January 1, 1930, the 1929 data must be in the hands of the committee not later than January 5, 1930. Blank forms stating the information desired will be sent to the State dairy specialists in a few days. If these blanks are returned before the end of December the dairy-herd improvement association table will appear in the 1929 Yearbook.

1927-28 RECORDS

The table on the following page gives the States in order of butterfat production per cow on test in dairy-herd improvement associations in 1927-28.

Number of Associations Jan.1,1928 Total	Number of Associations Reporting 1927-28	Name of State	Pounds of Butterfat Per Cow	Rank	Number of Associations Jan. 1,1929 Total
5	3	Utah	343	1	5
0	1	Nevada	334	2	1
10	5	Washington	334	2	12
11	10	Oregon	325	4	14
9	7	Colorado	323	5	14
12	9	Idaho	323	5	13
105	90	Michigan	319	7	94
29	20	Ohio	312	8	39
17	12	New Jersey	309	9	18
34	26	Indiana	309	9	41
9	7	Massachusetts	304	11	11
30	6	Virginia	304	11	20
65	51	Pennsylvania	304	11	76
7	5	Maryland	303	14	8
17	12	Nebraska	298	15	23
2	2	New Mexico	297	16	2
42	8	New York	293	17	54
34	28	Illinois	291	18	51
166	135	Wisconsin	291	18	154
4	3	North Dakota	291	18	7
4	1	West Virginia	291	18	6
14	11	Kansas	290	22	20
25	19	Missouri	286	23	34
5	4	North Carolina	284	24	8
12	4	Oklahoma	284	24	22
105	78	Minnesota	280	26	117
4	3	New Hampshire	278	27	7
86	64	Iowa	277	28	101
25	13	Vermont	277	28	23
7	5	Montana	275	30	8
3	1	Texas	269	31	6
3	3	Tennessee	269	31	7
8	8	South Dakota	264	33	14
3	2	Alabama	198	34	4
Total 902	656				1034

The figures given below show the number of dairy-herd improvement associations reported for Jan.1,1928 and for Jan.1,1929. No records were received for 1927-28 from any of these States.

State	1928	1929	State	1928	1929
Maine	0	0	California	32	32
Kentucky	0	8	Connecticut	5	3
Arizona	2	3	Louisiana	2	2
Delaware	0	1	Rhode Island	0	1
Mississippi	1	1	Wyoming	0	1
Georgia	1	2	South Carolina	0	1
Arkansas	2	0	Florida	0	1
				45	56

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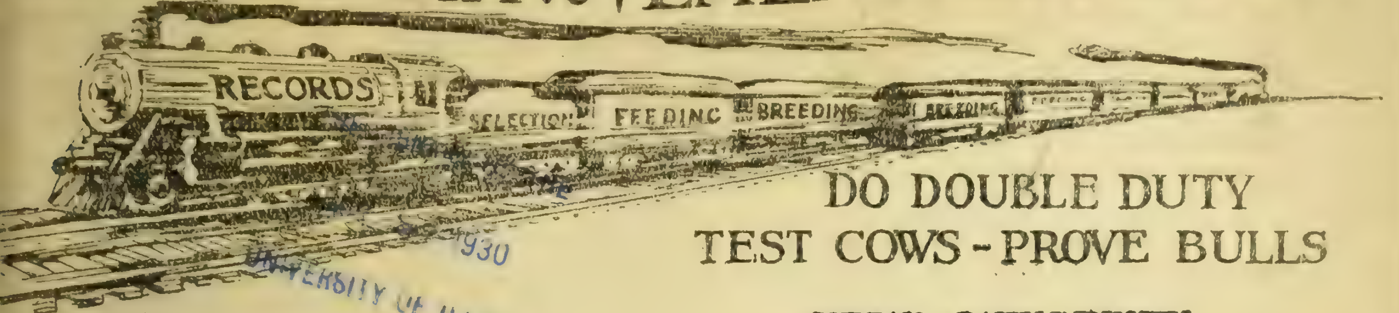
DAIRY HERD IMPROVEMENT ASSOCIATIONS



JAN 1930
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DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.

Dairy-Herd Improvement Association Letter Vol. 6 No. 1

January, 1930

#1-3
#5
#8-12

CULLING LOW PRODUCERS

During the past few years, several hundred dairy cows in the United States have produced more than 1,000 pounds of butterfat each in one year. Many herds have produced an average of 400 pounds or more per cow. The half million cows enrolled in the dairy-herd improvement associations had an average of 295 pounds of butterfat per cow in 1928. The yearly average of all cows in the United States, however, is only 180 pounds per cow. Many of our cows, therefore, fall below this general average. Dairy-herd improvement association records show that as production per cow increases, income over cost of feed also increases. Some method of systematic culling of low producers, therefore, should be introduced to raise the average of the herds. In most herds culling out ten or twenty per cent of the poorest cows would bring a surprising increase in production.

A Trial Culling

From the 1928 dairy-herd improvement association records received by the Bureau of Dairy Industry, the records of herds averaging from 150 to 199 pounds of butterfat per year per cow were selected and a 10, 20, and 30 per cent trial culling was made. Some of the cows in these herds produced considerably more than the herd averages. The following table shows the changes that take place in the average production and income over feed cost after culling.

	Before Culling	After Culling		
		10%	20%	30%
Number of records	2,149	1,934	1,719	1,504
Average milk per cow, lbs.	4,551	4,790	4,974	5,145
B'fat. test, per cent	4.1	4.1	4.1	4.1
Butterfat per cow, lbs.	187	197	205	212
Price of butterfat	$ 0.58	0.58	0.58	0.58
Value of product per cow	$ 109	115	120	124
Cost of roughage per cow	$ 24	24	24	25
Cost of grain per cow	$ 18	19	20	20
Total cost of feed per cow	$ 42	43	44	45
Income over cost of feed per cow	$ 67	72	76	79

The culling out of the poorest 10 per cent raised yearly milk production per cow from 4,551 to 4,790 pounds, butterfat production from 187 to 197 pounds, and income over cost of feed from $67 to $72. The culling out of the poorest 20 per cent raised the average yearly milk production per cow to 4,974 pounds, butterfat production to 205 pounds, and income over cost of feed to $76. The table shows that the culling out of the poorest 30 per cent brought a still greater production and income over cost of feed per cow.

The table includes the records of cows of all breeds and all ages. It may not be advisable to cull out 30 per cent of the cows except in very low-porducing herds, but no doubt a 10 per cent culling would be beneficial to the owners of dairy herds and to the industry as a whole. It may not be easy to prove that the low-producing cows are guilty when a surplus of dairy products is produced, but it is absolutely certain that their elimination will reduce such surplus. The culling out of enough low-producing dairy cows will eliminate the surplus altogether. Now is an excellent time to cull our dairy herds of all low-producing cows.

VALUE OF KEEPING RECORDS OF DAIRY COWS

Approximately 30,000 herds in the United States are on test in dairy-herd improvement associations. This work gives employment to about 1,200 testers and calls for the expenditure of approximately one and a half million dollars annually.

The operation of dairy-herd improvement associations has changed very little since the organization of the first association. They have, therefore, stood the test of time, and the leaders of the industry have confidence in the accuracy of the methods.

The records of dairy cows made through these associations are of inestimable value. They are being used as a guide to the culling out of low producers, to economical feeding, and as a proper valuation of breeding stock. Largely, as a result, more real progress toward profitable dairying has taken place during the past twenty years, the period of dairy-herd improvement association work, than in any other like period in history.

It is difficult to measure all the results of testing, yet the tabulations made by this bureau of the records of a half million cows in dairy-herd improvement associations show that a cow of average production on test is producing about $40 worth of butterfat per year more than a cow of average production in the United States. These one-half million cows produce in the aggregate $20,000,000 more annually than an equal number of cows of average production in the United States. Such encouraging results which have come largely from testing seem to indicate that an attempt to manage a dairy herd without keeping records shows a lack of business foresight.

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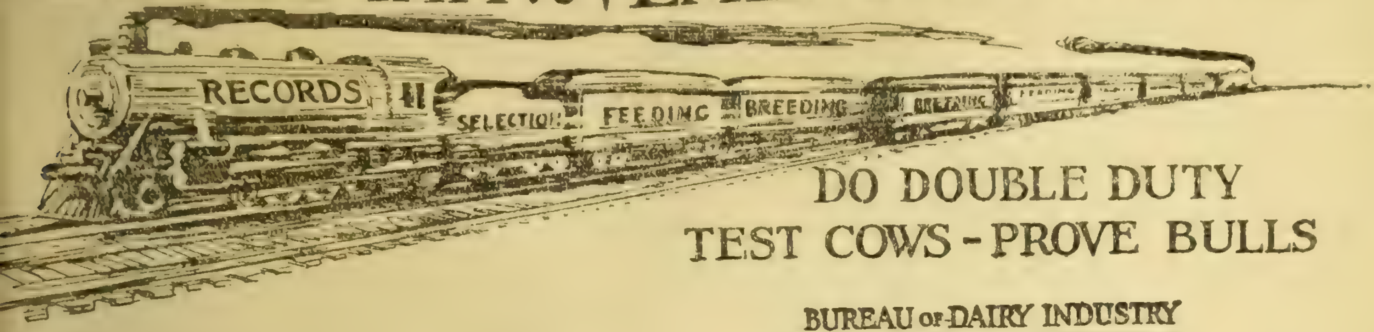
AIRY HERD IMPROVEMENT ASSOCIATIONS



DO DOUBLE DUTY
TEST COWS - PROVE BULLS

BUREAU OF DAIRY INDUSTRY
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON D.C

Dairy-Herd Improvement Association Letter. Vol. 6, No. 2

February, 1930

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1930

SUMMARY OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1930

(as reported by dairy specialists)

A very satisfactory increase in the number of dairy-herd-improvement associations was made during the past year. On January 1, 1930, there were 1,143 regular associations in active operation with 507,549 cows on test, an increase of 53 associations and 41,745 cows since January 1, 1929. The most commendable part of the year's work, however, is the increase in the number of yearly individual cow records sent in for tabulation. During the calendar year 1929 the bureau received the records of 856 associations for tabulation. This was an increase of 50 per cent over that of the year before.

There has been a decided improvement also in the filling out of the yearly individual cow record sheet BDI 46, which is sent to the bureau for tabulation. Some of the records, however, are still so incomplete that they are worthless for tabulation purposes and must be returned to the States without making the summaries. Just a little more care is needed in filling out these report sheets in order that the association members may receive the necessary information for herd improvement.

GROWTH OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS, 1906-1930

Up to and including 1923 data were collected on July 1. Beginning with 1924 reports are made by calendar years. Last five columns give data for January 1.

State	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30
Mich.	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	94	90
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0	5
New York			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	54	51
Vermont				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23	23
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86	101	101
California				1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30	35	32	32	33
Wisconsin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166	154	142
Nebraska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23	28
Colorado					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	14	15
Pennsylvania					1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43	49	65	76	83
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29	39	38
Washington					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12	15
Maryland						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8	9
Illinois						4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51	59
Minnesota						3	7	10	9	11	22	26	23	21	19	23	37	55	88	84	85	105	117	120
New Hampshire						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	4	7	7
Oregon						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14	14
Utah						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5	8
Massachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11	11
Virginia						2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	20	20	20
Kansas								1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	20	22
Indiana								2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	41	51
Kentucky								1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8	12
Missouri									2	1	2	5	4	5	6	7	11	12	13	19	21	25	34	36
New Jersey									2	3	4	8	9	9	12	8	6	6	6	9	11	17	18	16
West Virginia									1	1	3	1	1	1	3	5	5	6	3	3	3	4	6	7
Connecticut									1	3	6	3	0	0	1	0	2	1	1	2	4	5	3	4
North Carolina									2	0	0	0	0	0	2	2	0	0	2	5	5	5	8	7
Louisiana									1	0	0	0	0	0	1	0	0	0	0	0	1	2	2	2
South Dakota									1	1	3	3	0	0	0	0	0	4	11	9	10	8	14	12
Nevada										1	0	1	0	0	0	1	1	4	3	1	3	0	1	0
Arizona											2	2	1	0	0	2	1	1	2	1	1	2	3	4
Rhode Island											2	2	0	0	4	4	4	3	0	0	0	0	1	1
Delaware											2	3	2	2	1	0	0	0	0	0	0	0	1	1
Idaho											2	1	1	4	5	6	4	8	8	8	9	12	13	13
Mississippi											1	0	0	0	0	3	2	1	1	2	0	1	1	2
Montana											1	2	0	0	0	0	0	2	4	3	7	7	8	9
Tennessee											1	8	4	6	3	3	4	2	2	2	2	3	7	10
New Mexico												1	0	0	0	1	1	1	0	1	1	2	2	1
Wyoming												1	0	1	0	0	0	0	1	0	0	0	1	1
Alabama													2	1	3	1	1	0	0	0	1	3	4	7
eorgia													1	0	0	0	0	0	0	0	1	1	2	1
orth Dakota													1	1	1	2	6	8	5	3	6	4	7	9
klahoma														1	1	2	1	3	5	5	5	12	22	25
outh Carolina														1	1	1	0	0	0	0	0	0	1	3
exas														3	0	0	0	0	0	0	1	3	6	7
rkansas															1	2	2	2	0	0	0	2	*	1
lorida																							1	2
otal	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	1090	1143

No report.

SUMMARY OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES -- ACTIVE JANUARY 1, 1930.

State	Number of ass'ns	Number of herds	Number of cows	Average per ass'n. Herds	Average per ass'n. Cows	Total dairy cows (B.A.E. Ests)	Percentage of cows in D.H.I.A.'S.
Alabama	7	106	3,731	15.1	533.0	353,000	1.1
Arizona	4	104	3,136	26.0	784.0	35,000	9.0
Arkansas	1	26	400	26.0	400.0	400,000	0.1
California	33	1,187	70,787	35.9	2145.0	626,000	11.3
Colorado	15	295	4,741	19.6	316.0	244,000	1.9
Connecticut	4	82	1,920	20.5	480.0	111,000	1.7
Delaware	1	21	390	21.0	390.0	38,000	1.0
Florida	2	11	650	5.5	325.0	78,000	0.8
Georgia	1	11	261	11.0	261.0	350,000	0.1
Idaho	13	428	4,210	32.9	323.8	178,000	2.4
Illinois	59	1,441	22,113	24.4	374.7	1,006,000	2.2
Indiana	51	1,283	19,010	25.1	372.7	721,000	2.6
Iowa	101	2,513	37,199	24.8	368.3	1,340,000	2.8
Kansas	22	529	8,319	24.0	378.1	722,000	1.2
Kentucky	12	281	5,000	23.4	416.6	498,000	1.0
Louisiana	2	39	1,000	19.5	500.0	204,000	0.5
Maine	5	127	1,509	25.4	301.8	138,000	1.1
Maryland	9	191	3,495	21.2	388.3	193,000	1.8
Massachusetts	11	260	5,832	23.6	530.1	134,000	4.4
Michigan	90	2,125	25,455	23.6	282.8	866,000	2.9
Minnesota	120	3,092	43,898	25.7	365.8	1,512,000	2.9
Mississippi	2	52	771	26.0	385.5	410,000	0.2
Missouri	36	811	13,928	22.5	386.8	860,000	1.6
Montana	9	114	3,146	12.6	349.5	186,000	1.7
Nebraska	28	668	9,362	23.8	334.3	638,000	1.5
Nevada	0	0	0	0	0	20,000	0.0
New Hampshire	7	169	3,352	24.1	478.8	77,000	4.4
New Jersey	16	363	9,553	22.6	597.0	125,000	7.6
New Mexico	1	12	911	12.0	911.0	67,000	1.4
New York	51	1,135	24,273	22.2	475.9	1,383,000	1.8
North Carolina	7	116	3,719	16.5	531.2	312,000	1.2
North Dakota	9	210	3,311	23.3	367.8	495,000	0.7
Ohio	38	900	12,588	23.6	331.2	908,000	1.4
Oklahoma	25	397	7,442	15.8	297.6	634,000	1.2
Oregon	14	484	8,150	34.5	582.1	220,000	3.7
Pennsylvania	88	2,252	33,317	25.5	378.6	889,000	3.7
R. Island	1	14	364	14.0	364.0	21,000	1.7
South Carolina	3	51	1,539	17.0	513.0	143,000	1.1
South Dakota	12	297	4,565	24.7	380.4	528,000	0.9
Tennessee	10	201	3,861	20.1	386.1	456,000	0.8
*Texas	7	-	-	-	-	974,000	-
Utah	8	381	3,992	47.6	499.0	100,000	4.0
Vermont	23	598	12,191	26.0	530.0	294,000	4.1
Virginia	20	450	12,568	22.5	628.4	396,000	3.2
Washington	15	295	6,354	19.6	423.6	295,000	2.2
West Virginia	7	121	1,730	17.2	247.1	226,000	0.8
Wisconsin	142	3,031	63,307	25.5	445.8	2,023,000	3.1
Wyoming	1	14	199	14.0	199.0	72,000	0.3
Total	1,143	27,888	507,549			22,499,000	2.3
Average				24.4	444.0		

*Data incomplete.

SUMMARY

	Jan. 1, 1929	Jan. 1, 1930	Gain
Number of associations	1,090	1,143	53
Number of members	26,182	27,888	1,706
Number of cows	465,804	507,549	41,745
Average herds per association	24.3	24.4	0.1
Average cows per association	431.7	444.0	12.3

EVERY OTHER MONTH DAIRY HERD IMPROVEMENT ASSOCIATIONS AS REPORTED BY STATE DAIRY SPECIALISTS

January 1, 1930

State	No. of ass'ns.	No. of herds	No. of cows	Average per association Herds	Average per association Cows
Alabama	3	10	295	3.3	29.5
Montana	1	26	328	26.0	328.0
Missouri	2	83	1,024	41.5	512.0
Utah	2	156	1,868	78.0	934.0
Idaho	2	62	625	31.0	312.5
Total	10	337	4,140		
Average				33.7	414

TESTING CIRCLES AS REPORTED BY STATE DAIRY SPECIALISTS

January 1,1930

State	No. of ass'ns.	No. of herds	No. of cows	Average per association Herds	Average per association Cows
Maryland	1	35	350	35.0	350.0
Illinois	2	80	950	40.0	475.0
Missouri	1	7	77	7.0	77.0
Nebraska	4	31	630	7.7	157.5
South Dakota	1	5	50	5.0	50.0
Vermont	1	3	70	3.0	70.0
Total	10	161	2,127		
Average				16.1	212.7

TEN HIGHEST STATES IN DAIRY-HERD IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS. JANUARY 1, 1929 - JANUARY 1, 1930.

Largest Number of D.H.I.A.'S.		Largest Number of Members	
1929	1930	1929	1930
Wisconsin	Wisconsin	Wisconsin	Wisconsin
Minnesota	Minnesota	Minnesota	Minnesota
Iowa	Iowa	Iowa	Iowa
Michigan	Michigan	Michigan	Pennsylvania
Pennsylvania	Pennsylvania	Pennsylvania	Michigan
New York	Illinois	California	Illinois
Illinois	New York) tie	Illinois	Indiana
Indiana	Indiana)	New York	California
Ohio	Ohio	Indiana	New York
Missouri	Missouri	Ohio	Ohio

Largest Number of Cows in D.H.I.A's.		Highest Percentage of All Cows on Test	
1929	1930	1929	1930
California	California	California	California
Wisconsin	Wisconsin	New Jersey	Arizona
Minnesota	Minnesota	Arizona	New Jersey
Iowa	Iowa	Oregon	New Hampshire
Pennsylvania	Pennsylvania	New Hampshire	Massachusetts
Michigan	Michigan	Vermont	Vermont
New York	New York	Massachusetts	Utah
Illinois	Illinois	Virginia	Oregon
Indiana	Indiana	Wisconsin	Pennsylvania
Vermont	Missouri	Pennsylvania	Virginia

OFFICIALS IN CHARGE OF DAIRY-HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES.

LABAMA.........F. W. Burns, Extension Service, College of Agriculture, Auburn.
RIZONA.........Clyde F. Rowe, Extension Service, College of Agriculture, Tucson.
RKANSAS........W. H. Woodley, Extension Service, College of Agriculture, Fayetteville.
ALIFORNIA......G. E. Gordon, Extension Service, College of Agriculture, Berkeley.
OLORADO........C. A. Smith, c/o State Dairy Commissioner, Fort Collins.
ONNECTICUT.....A. R. Merrill, Extension Service, Connecticut Agricultural College, Storrs.

ELAWARE........C. A. McCue, Director of Extension, School of Agriculture, Newark.

LORIDA.........H. L. Brown, Extension Division, College of Agriculture, Gainesville.

EORGIA.........F. W. Fitch, Ext. Div., Georgia State College of Agriculture, Athens.

DAHO...........D. L. Fourt, State House, Boise.
LLINOIS........C. S. Rhode, Extension Service, College of Agriculture, Urbana.
NDIANA.........G. A. Williams, Dept. of Agri. Ext., School of Agriculture, Lafayette.
OWA............Floyd Johnston, Agr. Ext., Iowa State College of Agriculture, Ames.

ANSAS..........J. W. Linn, Extension Division, Kansas State College of Agriculture, Manhattan.
ENTUCKY........Fordyce Ely, Extension Service, College of Agriculture, Lexington.

OUISIANA.......E. W. Neasham, Extension Department, A. & M. College, Baton Rouge.

AINE...........R. F. Talbot, Extension Service, College of Agriculture, Orono.
ARYLAND........J. A. Conover, Extension Service, College of Agriculture, College Pk.
ASSACHUSETTS...C. J. Fawcett, Extension Service, Mass. Agri. College, Amherst.
ICHIGAN........A. C. Baltzer, Extension Service, Mich. Agri. College, East Lansing.
INNESOTA.......Ramer Leighton, Agri. Ext., College of Agri., University Farm, St. Paul
ISSISSIPPI.....L. A. Higgins, Extension Service, A. & M. College.
ISSOURI........M. J. Regan, Agri. Ext. Service, College of Agriculture, Columbia.
ONTANA.........J. O. Tretsven, Ext. Ser., Montana State College of Agri., Bozeman.

EBRASKA........M. L. Flack, Extension Service, College of Agriculture, Lincoln.
EVADA ....V. E. Scott, Agricultural Extension, College of Agriculture, Reno.
EW HAMPSHIRE...G. L. Waugh, Extension Service, College of Agriculture, Durham.
EW JERSEY .....E. J. Perry, Division of Ext., State College of Agri., New Brunswick.

EW MEXICO.....E.E. Anderson, Extension Service, N.M. College of Agriculture,
State College.
EW YORK.......G. W. Tailby, Jr., Extension Service, N.Y. State College of
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ORTH CAROLINA.J.A. Arey, Ext. Ser.; N.C. State College of Agriculture,
State College Station, Raleigh.
ORTH DAKOTA ..A.M. Challey, Agri. Ext., N.Dak.Agricultural College, Fargo

HIO..........Ivan McKellip, Agri. Ext. Work, College of Agriculture, Columbus.
KLAHOMA.......J.W. Boehr, Extension Service, Okla, Agricultural College,
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REGON.........N.C. Jamison, Extension Service, Oregon Agricultural College,
Corvallis.

ENNSYLVANIA...C.R. Gearhart, Agricultural Extension,School of Agri., State Col.
I.C. Sidelmann, " " " " " " "

HODE ISLAND...H.Burdick, Rhode Island State College, Kingston.

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EXAS..........J.L. Thomas, Extension Service, A. & M. College of Texas,
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ERMONT........E.H. Loveland, Extension Service, College of Agriculture,
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IRGINIA.......C. E. Schrock, Extension Division,Va. A. & M. College, Blacksburg.
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EST VIRGINIA..J.V. Hopkins, Extension Division, College of Agriculture, Morgantown.
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YOMING........J. R. Neale, Agri. Ext., College of Agriculture, Laramie.

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Dairy Herd-Improvement Association Letter Vol. [illegible] No. 3

MARCH 1930

PROVING DAIRY HERD-IMPROVEMENT ASSOCIATION SIRES

This number is entirely devoted to the proved-sire work of the dairy herd-improvement associations, a phase of the work that is being recognized as very important in herd improvement.

TABLE 1 gives the number of active dairy herd-improvement associations in the United States on January 1, 1930, and a summary of the sires proved in these associations up to then. Up to the first of the present year 914 sires in 32 States had been proved, by comparing the yearly milk and butterfat records of five or more unselected daughters of each sire with the yearly milk and butterfat records of their dams. Of the sires proved, 112 were living on January 1; 622 were dead; and no reports were received concerning the other 180.

TABLE 2 gives a summary of the dam and daughter comparisons received, and the number of partly proved sires, up to January 1, 1930. From the 18,187 dam and daughter comparisons received, 914 sires were proved and 6,869 sires were partly proved. In 1929, 3,287 dam and daughter comparisons were received, which was 2,303 fewer than were received the previous year.

TABLE 3 shows the States in which sires were proved in 1929, and the number in each State. In that year 279 sires were proved, which was 41 more than in 1928. Of this number 40 were living on January 1, 1930, and 139 were dead. On the remaining 100 no reports were received.

TABLE 4 shows the number of sires partly proved in 1929. Three dam and daughter comparisons were received for 201 sires and four dam and daughter comparisons for 122 sires.

TABLE 1.-SUMMARY OF PROVED-SIRE WORK IN DAIRY HERD IMPROVEMENT ASSOCIATIONS TO JANUARY 1, 1930.

tate	Number of Active Ass'ns. on Jan. 1, 1930	Number of Sires Proved												
		Totals						By Breed*						
		Up to 1/1/29	In 1929	To 1/1/30	Living	Dead	No Report	J	G	H	A	BS	RP	SH
labama	7													
rizona	4													
rkansas	1													
alifornia	33													
olorado	15	1	0	1		1				1				
onnecticut	4													
elaware	1													
lorida	2													
eorgia	1													
daho	13	29	1	30	10	15	5	13	3	14				
Ilinois	59	18	5	23	2	20	1	4	3	16				
ndiana	51	16	10	26	5	17	4	10	6	10				
owa	101	31	28	59	10	40	9	7	16	34		1	1	
ansas	22	26	7	33	3	28	2	4		27	1	1		
entucky	12	2		2		2				2				
ouisiana	2	0												
aine	5													
aryland	9	6	4	10	2	5	3	2	8					
assachusetts	11	0	1	1			1			1				
ichigan	90	87	27	114	14	92	8	43	21	43		1	1	
innesota	120	24	44	68	6	41	21	7	18	33		2	2	1
ississippi	2	4		4		1	3	4						
issouri	36	17	5	22	3	12	7	15	3	4				
ontana	9	1	1	2		2			1	1				
ebraska	28	2	3	5		3	2			5				
evada	0	4		4	1	3				4				
ew Hampshire	7	1	6	7		3	4	5		2				
ew Jersey	16	6	1	7		6	1		2	5				
ew Mexico	1	1		1	1				1					
ew York	51	1		1		1		1						
orth Carolina	7	0												
orth Dakota	9	8		8	1	5	2			8				
io	38	13	6	19	2	10	7	6	5	8				
lahoma	25	1		1	1					1				
egon	14	2		2		2		2						
ennsylvania	88	51	26	77	13	57	7	16	4	51	6			
Island	1													
outh Carolina	3													
outh Dakota	12	13	3	16	1	11	4	3		13				
ennessee	10	1		1			1	1						
exas	7	0												
ah	8	6	6	12	3	1	8			12				
rmont	23	44	15	59	11	44	4	41	4	13	1			
rginia	20	8		8		7	1	4	3	1				
shington	15	0	3	3			3	1	2					
st Virginia	7	0												
sconsin	142	211	77	288	23	193	72	25	78	171	3	4		7
oming	1													
tal	1143	635	279	914	112	622	180	214	178	490	11	9	4	8

* See note - Table 2.

TABLE 2. - SUMMARY OF PROVED-SIRE WORK IN DAIRY HERD IMPROVEMENT ASSOCIATIONS UP TO JANUARY 1, 1930 (Continued)

State	Number of Dam and Daughter Comparisons Received To 1/1/28	During 1928	During 1929	Number of Sires Partly Proved up to January 1, 1930. Total	Breed* J	G	H	A	BS	RP	SH
Alabama	0			0							
Arizora	2			2			2				
California	0			0							
Colorado	30			16	7	2	7				
Connecticut	0		4	2		2					
Georgia	5		0	4	4						
Idaho	381	135	0	142	44	14	83	1			
Illinois	316	189	0	219	52	24	122		19		2
Indiana	252	275	72	250	116	41	85	4			4
Iowa	547	336	311	489	68	59	299	7	24	6	26
Kansas	493	176	72	225	63	2	131	27	2		
Kentucky	12	0	26	15	6	3	6				
Louisiama	8		0	4	4						
Maryland	83	51	0	37	13	13	8	3			
Massachusetts	20	34	12	40	13	6	11	6			4
Michigan	1496	652	460	1069	293	184	558	9	14	3	8
Minnesota	614	558	213	583	53	126	345	10	13	2	34
Mississippi	68		0	23	22		1				
Missouri	193	98	114	202	118	21	63				
Montana	42	33	0	36	9	6	20		1		
Nebraska	68	82	29	113	16	13	80	3			1
Nevada	39	25	0	14	1		12	1			
New Hampshire	26	78	0	25	10		8	1			6
New Jersey	68	72	49	83	1	21	61				
New Mexico	17	3	10	13		1	12				
New York	32	10	5	27	5	1	15	2	4		
North Carolina	6	8	0	8	3	5					
North Dakota	86	11	[illegible]	26		3	20				3
Ohio	360	84	63	232	109	26	94	2			1
Oklahoma	3	17	14	17	12		2	1	1		1
Oregon	72	35	14	63	34	16	11	1	1		
Pennsylvania	553	704	554	701	114	130	404	26	10		17
South Dakota	169	56	78	110	13	12	69	9		1	6
Tennessee	19	3	0	10	9		1				
Texas	1		0	1	1						
tah	50	102	0	28				28			
ermont	408	247	230	246	139	36	55	12	2		2
irginia	138	37	0	66	23	11	29				3
ashington	83	7	0	41	7	11	22	1			
est Virginia	14	0	15	20	9	7	2	1	1		
isconsin	2536	1472	941	1667	109	452	989	18	58	1	40
otal	9310	5590	3287	6869	1500	1248	3627	173	150	13	158

* J.- Jersey
G - Guernsey
H - Holstein
A - Ayrshire

RS - Brown Swiss
RP - Red Polled
SH - Shorthorn

TABLE 3. - INFORMATION ON SIRES PROVED IN 1929.

STATE	Number of Bulls Proved										
	Living	Dead	No Report	Total	Breed *						
					J	G	H	A	BS	RP	SH
Idaho		1		1			1				
Illinois	2	2	1	5	2		3				
Indiana	2	4	4	10	2	3	5				
Iowa	6	11	11	28	4	6	18				
Kansas		6	1	7	1		5		1		
Maryland	2	2		4	2	2					
Massachusetts			1	1			1				
Michigan	4	17	6	27	11	4	12				
Minnesota	5	25	14	44	6	8	27		2	1	
Missouri		2	3	5	2	1	2				
Montana		1		1		1					
Nebraska		2	1	3			3				
New Hampshire		2	4	6	5		1				
New Jersey			1	1			1				
Ohio	2	3	1	6	1	1	4				
Pennsylvania	4	11	11	26	5		19	2			
South Dakota	1	2		3		3					
Utah	1	1	4	6			6				
Vermont	3	8	4	15	14		1				
Washington			3	3	1	2					
Wisconsin	8	39	30	77	8	23	43	1	1		1
Total	40	139	100	279	64	54	152	3	4	1	1

* J - Jersey
G - Guernsey
H - Holstein
A - Ayrshire
BS - Brown Swiss
RP - Red Polled
SH - Shorthorn

TABLE 4. - INFORMATION ON SIRES PARTLY PROVED IN 1929.

State	Three Dam and Daughter comparisons by breed*								Four Dam and Daughter comparisons by breed *						
	J	G	H	A	BS	RP	SH		J	G	H	A	BS	RP	SH
Alabama															
Arizona															
California															
Colorado															
Connecticut		1													
Georgia															
Idaho															
Illinois															
Indiana	4		4						1		1				
Iowa	4	4	5						2	4	13				
Kansas	3		6								1				
Kentucky		1	3						2						
Louisiana															
Maryland															
Massachusetts	1														
Michigan	7	4	17						4	2	12				
Minnesota	1	4	7				1			1	2		4		
Mississippi															
Missouri	3		1						3	2	1				
Montana															
Nebraska	1		4						1		2				
Nevada															
New Hampshire															
New Jersey		1	1								1				
New Mexico			3												
New York															
North Carolina															
North Dakota															
Ohio	2	3													
Oklahoma															
Oregon											1				
Pennsylvania	6	6	19	3	1				3	3	13				
South Dakota	1		7								3				
Tennessee															
Texas															
tah															
Vermont	8		1	1					4	1	1		1		
Virginia															
Washington															
West Virginia	1			1											
Wisconsin	3	19	24		4				1	8	24				
otal	45	43	102	5	5		1		21	21	75		5		

* J - Jersey
G - Guernsey
H - Holstein
A - Ayrshire

BS - Brown Swiss
RP - Red Polled
SH - Shorthorn

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Dairy Herd-Improvement Association Letter Vol. 6 No. 5

MAY 1930

BULL ASSOCIATIONS IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

How bulls may be kept in service until proved and without inbreeding, is well illustrated by the organization of two bull associations in Idaho by members of a Dairy Herd-Improvement Association. Four members, each owning a Holstein bull, organized a Holstein Bull Association; and three members, each owning a Guernsey bull, organized a Guernsey Bull Association.

The Holstein and Guernsey bulls had been in service from one and a half to three years, and to keep them longer in the same herds would necessitate inbreeding or the purchase of other bulls to mate with their daughters. In each of the two bull associations organized, the bulls are owned jointly by all the members of the organization. Every two years each bull owned by the association will be transferred to the farm of another member.

This will enable each farmer to have the use of registered bulls over a period of 8 years in one association, and over a period of 6 years in the other, without inbreeding and without purchasing another bull. It will enable these farmers to prove the bulls and to make some use of them after they are proved.

It would, however, be better to have more members in each bull association, thus making it possible to keep the bulls in service for a longer time without their having to be stationed twice on the same farm.

Perhaps the time may come when it will be a common practice for members of Dairy Herd-Improvement Associations to organize themselves into bull associations in order to prove well-bred bulls; in order to prove these bulls without inbreeding; and in order to keep meritorious proved bulls in use as long as they live or as long as they are fit for service. When that time comes we may look for breeding to bring a rapid improvement in the herds on test in Dairy Herd-Improvement Associations.

"GENTLE" BULLS ARE UNSAFE

The so-called "gentle" bulls usually are the most dangerous. Many bulls that never before have appeared vicious suddenly turn on their keepers, often with fatal results. Nearly every week some person in the United States is killed or injured by a "gentle" bull. Two such cases recently were brought to the attention of the Bureau of Dairy Industry. One man was killed, the other very painfully injured. These tragedies could have been avoided if a safety bull pen had been used.

The safety bull pen is so arranged that it is unnecessary for the keeper to come in close contact with the bull at any time. It provides shelter, a stall for grain and silage feeding, a breeding stall, and an exercise yard.

All bulls over one year old should be considered dangerous and provision made to handle them with absolute safety to the keeper.

BIG COWS MORE ECONOMICAL PRODUCERS THAN SMALL COWS OF SAME BREED

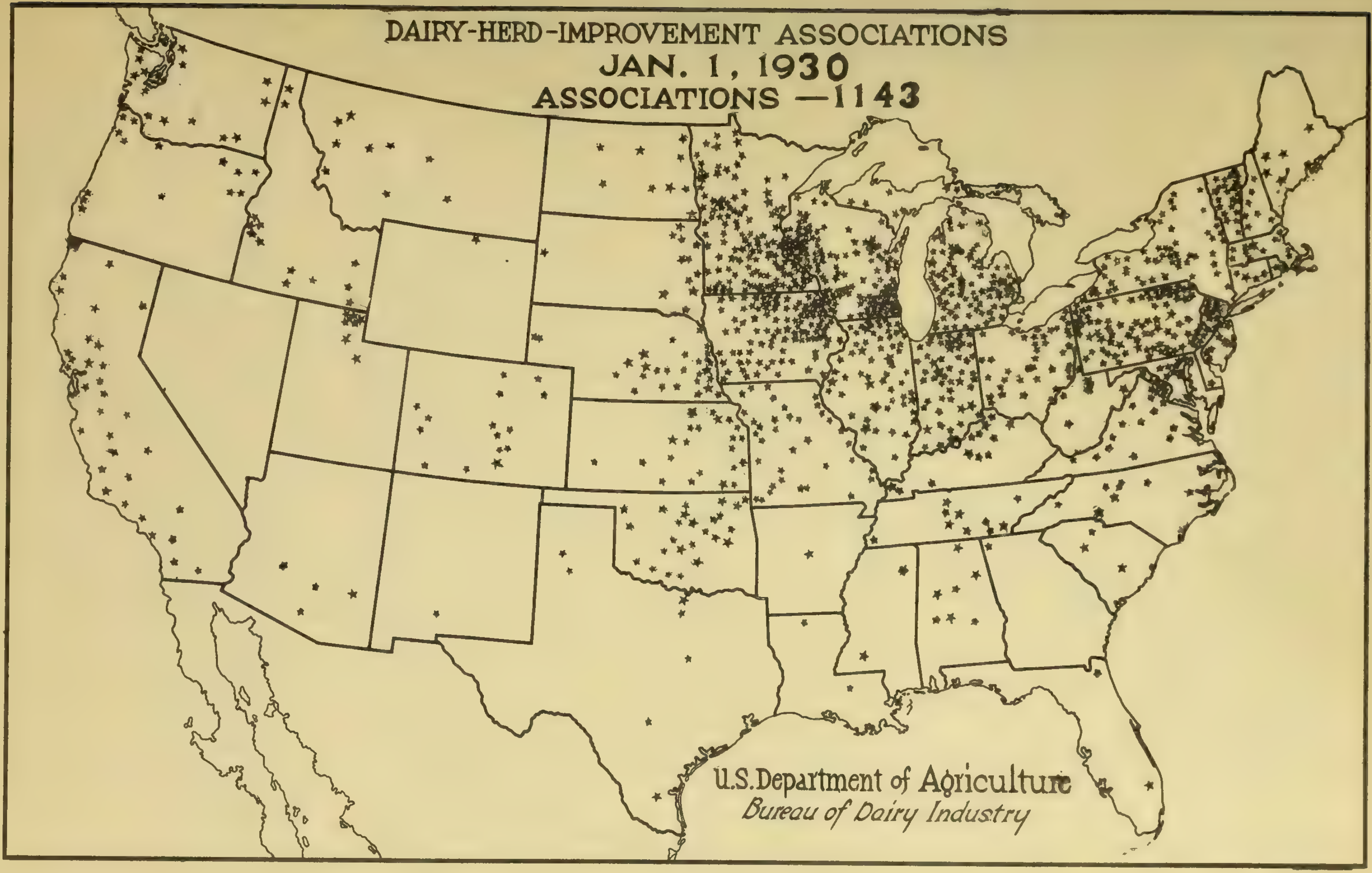
Within the breed, the big cows produce more milk and butterfat, consume more in dollars' worth of feed, and return a greater income over cost of feed, according to a new publication of the U. S. Department of Agriculture -- Circular No. 114, "Within the Breed the Big Dairy Cows Excel", copies of which are available for free distribution as long as the supply lasts. In making this study, the production and feed records of more than 200,000 cows of most of the dairy breeds were used. Tabulations of these records are given in the circular. This publication points out that it would be unsafe to buy cows on size alone, as size is only one factor that influences production. However, if all other factors are equal, the big cow will excel the small cow of the same breed.

COW-TESTER'S HANDBOOK

A number of inquiries have been received concerning the table on page 19 of the January 1930 edition of the Cow-Tester's Handbook. The expression "185 cow months" is the total of the third column "cows in herd", and not of the first column, as it appears.

BULL-ASSOCIATION CATECHISM

A reprint of the Bull-Association Catechism (BDIM-530), presenting 31 questions and answers, is ready for distribution. Extension workers interested in organizing bull associations will find this publication helpful in introducing the work in their territories.



DAIRY-HERD-IMPROVEMENT ASSOCIATIONS
JAN. 1, 1930
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Dairy Herd-Improvement Association Letter Vol. 6, No. 8.

August, 1930.

RE-NAMING THE "TESTER" AND HIS WORK

The keystone of success in Dairy Herd-Improvement Association work is the man who keeps the records. This man does more that test the milk. He weighs the feed eaten by each cow and makes a record of it. Also, he calculates and makes a record of the margin of profit which each cow returns to the owner over the cost of feed. Furthermore, he advises the farmer on feeding and breeding. And in many cases he is called upon for advice on problems of farm management in general.

In view of the fact that the duties of the so-called "tester" are manifold, the suggestion has been made from a number of quarters that the name of the job be changed. This suggestion was made many times to one of the regional extension specialists of the Bureau of Dairy Industry in the course of a recent field trip. At several "testers'" conferences which he attended the sentiment was expressed for a change in the name of the job. One tester said, "We don't think the name 'cow-tester' accurately describes the job. Another said, "The name 'cow-tester' or 'tester' is not dignified".

Changing the name will not change the job, but it may change the attitude of some men toward the job. It is very desirable that highly capable men be attracted to these herd-improvement positions. Many graduates of 4-year dairy courses realize the great value of the experience which the association work gives, but it may be a fact that the name which now attaches to the position is not attractive to a good many of them.

What name shall be selected, if there is to be a change? The name "supervisor" has been suggested. This seems to fit the job very well. But such name is likely to lead to some confusion in States where the man in charge of the State's dairy herd-improvement association work is called a Supervisor. Perhaps this State man might be called "superintendent" or "director". Other names suggested for the 'tester' are "inspector", "recorder", "bookkeeper", "overseer", and "herd-improvement agent".

We welcome your comment and suggestions on this point.

SUGGESTION TO TESTERS

The value of the investigational work based on Dairy Herd-Improvement Association records depends on the accuracy of the records. Most testers realize this and do their level best to furnish records that are fairly accurate. Accurate records are not only more valuable for investigational work, but they are of much greater value to the owners of the cows on test. This short article is not written to criticise the testers but to call their attention to some difficulties they may not have noticed.

Sins of Omission and Commission

BREED

1. Oftentimes the breed is omitted or is stated in such a way that the information can not be used. What does the word "Holstein" or the word "Jersey" mean? Does it mean registered or grade? In making breed tabulations we can use only those records on which the breed is clearly stated. The expression "grade Holstein" has a definite meaning. A record that gives the breed as "registered Jersey" is clear as regards breed and such a record can be used.

AGE

2. Oftentimes age is omitted altogether. Such a record must be thrown out of several tabulations. Sometimes the age of grade cows can not be given but, when possible to obtain the age, it should always be given.

NAME AND NUMBER

3. The name and number of the cow should be given in order to avoid confusion. The name and number as well as the months on test and months in milk must be given if the record is to be of value in proving bulls. The identification of each cow should be complete.

IDENTIFICATION OF SIRE

4. Sometimes the name and number of the proved sire can not be determined by any records available, yet, in the case of the proved sire, identification must be accurate and complete.

DAM AND DAUGHTER RECORDS

5. Many testers report no dam and daughter records whatever. The reports they send in are of no value in connection with the proving of bulls.

RECORDS NOT COMPARABLE

6. Sometimes advanced registry or register-of-merit records are given for the dam and dairy herd-improvement association records are given for the daughters. Such records do not give a fair comparison of dams and daughters.

ESTIMATING COW WEIGHTS

7. Often the tester neglects to give an estimated weight for the cow. It would be fine if we could get actual weights, but when such weights are not available, the estimated weight, if the estimating is carefully done, is very valuable for comparisons.

SLIPS OF THE PEN

8. A slip of the pen is quite common. Sometimes the cow is credited with a yearly yield of 80,000 pounds, meaning 8,000 of milk.

GIVE STATE AND ASSOCIATION

9. Sometimes the tester neglects to give the name of the association. Also the name of the State is sometimes missing from the records.

CLASSIFYING FEEDS

10. Sometimes the tester records hay as a concentrate, and occasionally concentrates are recorded as succulent feeds. One tester gave the following under the heading "succulent feeds": Clover hay, clover chaff, timothy hay, oats in the bundle, oat straw, corn stover. One tester in a Northern State in filling out the yearly record of one cow, said she was on pasture 410 days.

How Inaccuracies Show Up in Investigations

GIVE FIGURES ACCURATELY

1. If a wild record, such as one showing milk production as 70,000 pounds, or butterfat production is 3,000 pounds, is not caught in the checking, it will most certainly be caught in the tabulating. By that time, however, it has been incorporated into many tables, and it is difficult to remove that record from the various groups. Oftentimes a whole tabulation has to be done over again because of one inaccurate record.

ESTIMATE CAREFULLY

2. The part of a record which, of necessity, must be based on estimates, can not be expected to be as accurate as one based on actual weight or measurement. For example, when the farmer and the tester

estimate the weights of the cows, they will miss the exact weight sometimes by quite a margin. That does not mean that such records have no value. It simply means that their value is less, just to the extent that they are not accurate.

In estimating the weights for the cows of different breeds, there has always been a tendency for the testers to use the even numbered hundreds oftener than the odd numbered hundreds. This has been true for every breed, and the results have been evident in every frequency table. The following table for grade Holsteins is a good example of this.

Group number	Weight per cow	No. of records
1	800	1,230
2	900	2,666
3	1,000	13,658
4	1,100	10,616*
5	1,200	13,933
6	1,300	3,130
7	1,400	1,959
8	1,500	228
9	1,600	87

*If this table showed a normal distribution of records, Group 4 should have the greatest number. In this table, however, each of the Groups 3 and 5 contains many more records than Group 4. Here we have an error due to a peculiar habit of making estimates. The results, however, do not indicate that the error in the table was great enough to change the results, or to affect greatly the conclusions.

The tables made from a selection based on milk production per cow, on butterfat production per cow, and on most other subjects, generally show a normal distribution of records. Before drawing conclusions from tabulated data the investigor always studies the tables from different angles.

Figures from Dairy Herd-Improvement Associations are not as accurate as some experimental data, but the great number of records offsets occasional inaccuracies. That, however, is no excuse for errors in the records.

All along the line, we should strive to make the record work as accurate as possible.

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DAIRY HERD IMPROVEMENT ASSOCIATIONS

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BUREAU OF DAIRY INDUSTRY – UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 6 No. 9

October 1930

In the February 1930 letter a summary of the active Dairy Herd-Improvement Associations in the United States was given for the year 1929. The individual cow reports were slow in coming in and tabulations for all associations could not be made until all were received. Of the 1,090 active associations reported for 1929, the records of only 824 were sent in for tabulation.

The table below shows the averages, by years, of all association cows whose records were tabulated for the years in the period 1924-1929.

Year	No. of ass'ns.	Cow years	Ave. lbs. milk	Ave. lbs. b'fat.	Ave. gross income	Ave. feed cost	Ave. return over feed cost
1924	123	32,091	7,092	279	$161	$68	$94
1925	380	98,704	7,189	284	156	67	89
1926	476	127,617	7,316	289	170	69	101
1927	532	142,084	7,410	293	184	72	111
1928	656	201,590	7,464	295	193	77	116
1929	824	262,996	7,451	296	197	80	117

In 1929 there was a gain of 30.4 per cent in the number of individual cow records tabulated as compared with 1928. However, there were 266 active associations in the United States in 1929 that did not send in records for tabulation.

A summary of the 1928-29 records for all associations whose records were tabulated is given in the table below. The States are ranked according to butterfat production.

No. of ass'ns. active Jan.1,1929	No. of ass'ns. in 1928-29 State tabulations	State	Ave. lbs. butterfat per cow	Rank of State	No. of ass'ns. active Jan.1,1930
12	6	Washington	341	1	15
5	4	Utah	336	2	8
13	12	Idaho	334	3	13
41	34	Indiana	319	4	51
94	76	Michigan	318	5	90
14	9	Oregon	317	6	14
39	18	Ohio	307	7	38
20	12	Virginia	307	7	20
23	21	Nebraska	304	9	28
51	43	Illinois	304	9	59
154	117	Wisconsin	304	9	142
76	67	Pennsylvania	302	12	88
18	13	New Jersey	299	13	16
8	6	Maryland	297	14	9
11	8	Massachusetts	297	14	11
20	14	Kansas	294	16	22
117	98	Minnesota	293	17	120
8	5	Montana	293	17	9
54	32	New York	292	19	51
101	92	Iowa	289	20	101
6	4	West Virginia	289	20	7
6	3	Texas	281	22	7
14	14	South Dakota	279	23	12
34	26	Missouri	278	24	36
7	5	North Dakota	277	25	9
7	5	New Hampshire	273	26	7
23	16	Vermont	268	27	23
7	7	Tennessee	266	28	10
22	8	Oklahoma	265	29	25
8	7	Kentucky	256	30	12
2	1	Louisiana	235	31	2
4	4	Alabama	189	32	7

The table below shows the number of Dairy Herd-Improvement Associations that were reported active as of January 1, 1929, and as of January 1, 1930., It shows also the States(*) which either did not send in any records at all for tabulation or did not send in enough records to make a satisfactory State tabulation.

State	No. associations reported active		No. records received for tabulation	State	No. associations reported active		No. records received for tabulation
	1929	1930	1929		1929	1930	1929
Maine	0	5	0	Del.	1	1	0
Calif.	32	33	0	Miss.	1	2	0
Colo.	14	15	0	N.Mex.	2	1*	1
Conn.	3	4*	1	Wyo.	1	1	0
N.Car.	8	7*	6	Ga.	2	1	0
Nevada	1	0	0	S.Car.	1	3*	1
Ariz.	3	4	0	Ark.	0	1	0
R.I.	1	1	0	Fla.	1	2	0.

PROVING SIRES

A bull is proved through comparison of the production records of his daughters and their dams. The comparison of the daughters' yearly, mature-equivalent production with that of her dam shows the value of the sire in transmitting high production.

In the examination of the Dairy Herd-Improvement Association records sent to the Bureau of Dairy Industry for tabulation, it is found that in a number of cases the average of several years' production is given for the dam. Comparison of the average of several years' production of the dam with one year's production of the daughter may not be a fair comparison. One year's production of the daughter and one definite year for the dam is the best and perhaps the only fair basis for comparison.

Where the dam has more than one year's record, the highest production should be given with her age at the time the record was made.

Average production records sent in for the purpose of proving sires will be discarded.

TO MEET THE SHORT-FEED SITUATION

Reports from a number of States indicate that there has been an abnormal decline in the production of milk due to drying-up of pastures and shortage of other feed. It is reported from some sections that conditions are serious and that many dairymen do not see how they will be able to maintain their herds through the winter.

Two suggestions have been made for meeting the situation: (1) That a careful estimate of the amount of feed on hand be made, and that the ration fed to cows be reduced to a point where the feed will last through the winter, and (2), that the herd be culled to a point where the feed will be sufficient to maintain the herd on full rations.

The first suggestion may be good advice for cases where the herd is made up entirely of valuable animals and to dispose of which would be a great sacrifice to future breeding operations, and also in cases where the herd has already been culled to a high average production. The owners of such herds can afford to buy feed if necessary. However, when applied to the average herd kept for milk production, it would not seem to be good business to reduce the feed to the extent that production of the whole herd would be reduced to the level of scrub cows. The high-producing cows are the cows that return the greatest income, whether the market price for milk is high or low.

A study of the yearly records of hundreds of thousands of cows made by the Bureau of Dairy Industry shows that the cows whose average production of butterfat was 100 pounds a year returned an average income of $13 above feed costs. At 200 pounds of butterfat per year per cow the income over cost of feed was $53. At 300 pounds it was $90. At 400 pounds it was $130. At 500 pounds it was $169. Briefly stated, as butterfat production per cow advanced from 100 pounds to 500 pounds the income over feed cost was multiplied by 13. In other words, one 500-pound cow returned as much income over feed cost as 13 cows producing 100 pounds each.

The second suggestion appears to be the soundest one for a large number of dairymen. These dairymen should cull out, beginning with the lowest producers, and keep on culling to the point where the available feed will maintain the rest of the herd on full rations.

Reports indicate that many herds have been culled of low-producing cows, yet the Dairy Herd-Improvement Association summaries of three States show that there are 234 cows on test that did not pay for their feed, and these States are in the sections most affected by the drouth. The summaries show also that there are several thousand cows in these States which returned only the cost of feed.

Let's cull some more, and feed the rest to capacity.

J. E. Dorman,
Senior Dairy Husbandman,
Division of Herd-Improvement Investigations,
Bureau of Dairy Industry.

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DAIRY HERD-IMPROVEMENT ASSOCIATION LETTER Vol. 6, No.10

December 1930.

In the October Dairy Herd-Improvement Association Letter a table appeared showing the production of dairy herd-improvement association cows for each year during the period 1924-29. The table showed that there was an increase of only one pound of butterfat per cow in the 1929 average production over 1928 and $1.00 gain per cow in the income over cost of feed during that period.

Although this increase seems to be small, it means a gain of $1.00 for each of the 262,996 cows, or $262,996 more added to the income of the members of the dairy herd-improvement associations, a sum that would buy many of the necessities and some of the luxuries for the farm homes.

Another encouraging feature of record keeping is shown in the table, and that is: In spite of the fact that many new herds were entered on the association rolls each year, there has never been a step downward in the average production of butterfat or in the income over cost of feed.

THE 1931 YEARBOOK

Data are now being assembled for the 1931 Yearbook of the U. S. Department of Agriculture. The 1930 Yearbook gave a table showing the number of dairy herd-improvement associations by States for each year from 1906 to 1929 inclusive. The statistical committee of The Yearbook desires several additional tables for the 1931 edition, which is expected to come from the press soon after January 1, 1931. Blank forms calling for the desired information on dairy herd-improvement associations and bull associations have been mailed to every State dairy specialist, and it is hoped that there will be a prompt response so that the association tables will appear in The Yearbook for 1931.

PROVED SIRES INCREASING PRODUCTION

A tabulation has been made by the Bureau of Dairy Industry of the records of the first 1,000 sires proved in dairy herd-improvement associations. It shows that proved sires are increasing the production of their daughters over the production of the dams of the daughters, even though the dams were relatively high producers of both milk and butterfat.

The following table gives a comparison of the yearly production records of the dams and their daughters.

Comparison of Dams and Daughters

	Number of records	Average Production	
		Milk lbs.	Butterfat lbs.
Daughters	6,536	9,726	398
Dams	6,536	9,381	376
Daughters excelled dams (pounds)		345	22
Daughters excelled dams (per cent)		3.7	5.9

All told, 6,536 yearly production records of daughters were compared with the yearly production records of the dams. The average production of the dams was 9,381 pounds of milk and 376 pounds of butterfat. The average production of the daughters was 9,726 pounds of milk and 398 pounds of butterfat. In milk production the daughters excelled their dams by 345 pounds, or 3.7 per cent; and in butterfat production they excelled by 22 pounds, or 5.9 per cent. This would hardly be considered a large gain, either in pounds or in per cent, but it is very satisfactory, considering that the dams to which the sires were mated were comparatively high producers. In fact these dams produced, on an average, 102 pounds of butterfat more than the average of all cows in dairy herd-improvement associations. It would seem reasonable to believe that if more proved sires were in use in our dairy herd-improvement association herds, in a few years the production of all cows on test in these associations would be materially increased.

-- By W.E. WINTERMEYER,
Associate Dairy Husbandman,
Bureau of Dairy Industry,
U. S. Department of Agriculture,
Washington, D. C.

THE RELATION OF HIGH PRODUCTION PER COW TO COST OF PRODUCING DAIRY PRODUCTS

A tabulation made by the Bureau of Dairy Industry of the dairy herd-improvement association records shows that there is a direct relation between the production per cow and the cost of producing butterfat.

The yearly records of more than 150,000 cows were tabulated according to the amount of butterfat produced. Exact pounds of butterfat were used and the groups were centered approximately on 50 pounds, as shown in the following table:

Number of cows	Pounds of butterfat	Price per pound	Value of product	Cost of feed	Income over feed cost	Feed cost per pound butterfat
		cents	dollars	dollars	dollars	cents
1,612	106	61	64	46	18	43
7,304	155	61	94	53	41	34
21,031	203	62	125	60	65	30
33,668	251	63	158	69	89	27
37,105	300	63	189	77	113	26
26,220	347	64	221	84	137	24
14,868	397	64	253	90	163	23
6,489	446	64	284	98	186	22
2,379	495	65	320	108	212	22
150,676						

There is a distinct relation between production and the feed cost of a pound of butterfat. The high producing groups produce butterfat at a much lower feed cost than the low producing groups.

In the group of cows with an average production of 100 pounds of butterfat the feed cost per pound of butterfat is approximately double that of the group producing an average of 450 pounds.

It is noted that the selling price of the product is slightly higher from group to group in relation to the amount of production per cow, - that is, - the greater the production, the higher the price received for the product. The records do not show a reason for this, but it may be that the owners of high-producing herds are better business men and are able to get higher prices for the product. At any rate, the tabulation shows that high profits accompany high production per cow, and it seems strange, when high-producing cows show such remarkable returns as compared with low-producing cows, that more dairymen do not make an effort to have high producers.

By J. E. DORMAN,
Senior Dairy Husbandman,
Bureau of Dairy Industry,
U.S. Department of Agriculture,
Washington, D. C.

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DAIRY HERD-IMPROVEMENT ASSOCIATION LETTER Vol. 7, No. 1

January 1931

GROUND WHEAT FOR DAIRY COWS

Feeding experiments made at several experiment stations in the United States, and also in Denmark, show that wheat has practically the same feeding value as barley or corn.

Wheat, more than any other grain, tends to work into a gummy mass when masticated and in that condition it is not readily acted upon by the digestive juices. Therefore, wheat should be rolled or ground and then mixed with more bulky feeds, such as ground oats or corn gluten feed. Wheat can safely form one-third of the grain mixture. Note the following table of comparative values.

Table showing what Wheat is worth for Feeding Purposes, as compared with Corn, Oats, and Barley

(Computations based upon Henry & Morrison's Table of Digestible Nutrients)

When the price of wheat per bushel is --	-- then it is economical to substitute wheat for corn, oats, or barley, when the prices of these grains per bushel are equal to or higher (but not lower) than the figures given below		
WHEAT	CORN*	OATS	BARLEY
$0.60	$0.56	$0.28	$0.48
.70	.65	.33	.56
.80	.75	.38	.63
.90	.84	.42	.71
1.00	.93	.47	.79
1.10	1.03	.52	.87
1.20	1.12	.56	.95

*(Based on No. 3 corn)

Suggestions for Rations Containing Wheat

(Parts are by weight)

I

Equal parts of ground wheat, oats, and barley. This grain ration contains about 12 per cent of crude protein, and is suitable for use with alfalfa hay, clover hay, or good pasture.

II

Equal parts of ground wheat, oats, and corn gluten feed. This mixture contains about 17 per cent of crude protein, and is suitable for feeding along with legume hay and silage, or with mixed hay alone.

III

Equal parts of ground wheat, oats, corn gluten feed, and cottonseed meal. This mixture contains about 23 per cent of crude protein, and is suitable for feeding with non-legume hay and silage, or with either alone.

In the above rations, dried brewers' grains may be substituted for corn gluten feed, if the cost is less.

IV

The protein content of a 24-per-cent-crude-protein ready-mixed dairy feed, consisting of grains other than wheat, may be reduced to 20 per cent by adding 100 pounds of ground wheat to 200 pounds of the dairy feed, thus making a mixture suitable for feeding with legume hay and silage or with mixed hay.

V

The protein content of a 30-per-cent-protein ready-mixed dairy feed which does not contain any wheat, may be reduced to 24 per cent crude protein by adding 100 pounds of ground wheat to 200 pounds of the mixture. Such a ration would be suitable for use with a non-legume hay.

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PROBLEMS IN PROVING DAIRY SIRES

In studying the dam-and-daughter records submitted for the proved-sire work for last year, we found that a surprisingly large number of the records of either dams or daughters sent to the bureau were incomplete and could not be used in the proving of sires. The main reason why so many of the records had to be discarded was the failure of testers to give the age of the cow on test, the months in milk, the months on test, and proper identification of the cow. When the age of the cow is omitted it is impossible to figure her mature age equivalent. Also, when the months in milk and months on test are omitted, the records are discarded. Only those records are compared where the cows are on test during 12 consecutive months and in milk 9 months or longer.

A large number of records of registered cows are received which do not give the cow's name and registration number, but only her tattoo or stable number. When only the tattoo or stable number is given there is no way of identifying the animal. The following year the same animal may be reported by name and registration number. This change in reporting the same animal may result in a duplication of the records, as well as in making it impossible to credit the sire with all his dam-and-daughter comparisons. In order to keep the proved-sire work accurate, either these records must be discarded or they must be returned to the State dairy specialist for verification, and he in turn must get in touch with the tester to obtain the information. This causes considerable delay in proving the sire and returning to the owner a report on the breeding ability of the sire. On account of the fact that such a large number of sires are disposed of before their true value is known, every avoidable delay in proving the sires should be eliminated.

DEMAND EXCEEDS SUPPLY

In these days when we hear so much about overproduction of farm products, it is interesting to find one farm product where the demand greatly exceeds the supply. So far, in the entire United States there are fewer than 200 living, highly meritorious, proved dairy bulls that have been proved by comparing the yearly production records of 5 or more unselected daughters of each bull with the yearly production records of the dams of the daughters. The demand for such bulls at fair prices is far beyond the present supply, and there is no probability that the demand will be fully met during this generation or for many generations to come.

To be sure, there have been instances when such bulls could not be sold locally because their value was not appreciated or because of a lack of bull pens to insure safety to their keepers; but somebody somewhere stands ready to pay a good price for a good bull of proven value. There is every reason to believe that as time goes on the demand will grow faster than these bulls will increase in number.

From the present outlook here is one enterprise, or perhaps we should say a part of one enterprise, where there is little or no danger of overproduction. There may be overproduction of wheat, cotton, potatoes, or tobacco, but it is doubtful whether there will ever be an overproduction of highly meritorious proved dairy bulls. For the energetic dairyman, therefore, here is an opportunity; but he must remember that the demand is only for meritorious bulls that have demonstrated their ability to transmit high production to their offspring.

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WASHINGTON, D.C.

DAIRY HERD-IMPROVEMENT ASSOCIATION LETTER Vol. 7, No. 3

March 1931

PROVING DAIRY-HERD IMPROVEMENT ASSOCIATION SIRES

This Letter is entirely devoted to the proved-sire work of the Dairy Herd-Improvement Associations, a phase of work that is very important in herd improvement.

Table 1 gives the number of active Dairy Herd-Improvement Associations in the United States, and a summary of the sires proved in these associations up to January 1, 1931. Up to that time 1,295 sires in 33 States had been proved by comparing the yearly milk and butterfat records of five or more unselected daughters of each sire with the yearly milk and butterfat records of their dams. Of the sires proved, 121 were reported as being alive on January 1; 919 were dead; and no reports were received concerning the other 274.

Table 2 gives a summary of the dam and daughter comparisons received and the number of sires partly proved up to January 1, 1931. From the 26,980 dam and daughter comparisons received, 1,295 sires were proved and 9,300 sires were partly proved. Last year 8,793 dam and daughter comparisons were compiled, which was 5,506 more than were received in 1929. This indicates the great increase in interest which the States are taking in the proved-sire work.

Table 3 shows the States in which sires were proved in 1930, and the number of sires proved in each State. Altogether 381 sires were proved. This is 102 more than were proved in 1929. Of the number of sires proved last year, 54 were reported as living, 216 were dead, and on the 111 others no reports were received.

Table 4 shows the number of sires partly proved in 1930. Three dam and daughter comparisons were compiled for 184 sires, and four dam and daughter comparisons for 126 sires.

Table 5 shows the total number of partly proved sires in the States on which one or more dam and daughter comparisons were compiled in 1930.

TABLE 1.- Summary of Proved-Sire Work in Dairy Herd-Improvement Associations to January 1, 1931

State	Number of Active Ass'ns. on Jan.1,1931	Number Proved Up to 1/1/30	Number Proved In 1930	Total Number of Sires Proved										
				Total To 1/1/31	Living	Dead	No Report	Total by Breed*						
								J	G	H	A	BS	RP	SH
Alabama	6													
Arizona	3													
Arkansas	3													
California	31													
Colorado	15	1		1		1				1				
Connecticut	4													
Delaware	1													
Florida	0													
Georgia	0													
Idaho	12	30	63	93	24	50	19	31	13	49				
Illinois	62	23	4	27	2	25	0	6	5	16				
Indiana	37	26	12	38	3	28	7	17	8	13				
Iowa	100	59	44	103	13	83	7	12	25	63		1	2	
Kansas	25	33	16	49	3	28	18	6		40	2	1		
Kentucky	12	2	5	7	2	5	0	2	1	4				
Louisiana	3													
Maine	5													
Maryland	13	10	5	15	0	6	9	5	10					
Massachusetts	13	1	2	3		3		2		1				
Michigan	88	114	23	137	11	113	13	53	23	59		1	1	
Minnesota	96	68	24	92	0	51	41	13	23	48		2	2	4
Mississippi	3	4		4		4		4						
Missouri	34	22	7	29	4	24	1	19	4	6				
Montana	9	2		2		2			1	1				
Nebraska	29	5	5	10	1	9		1		9				
Nevada	0	4		4	1	3				4				
New Hampshire	8	7	8	15	1	14		9		6				
New Jersey	15	7	12	19	0	12	7		2	17				
New Mexico	1	1	3	4	1		3		1	3				
New York	69	1	2	3		2	1	2		1				
N. Carolina	7													
N. Dakota	9	8		8	0	6	2			8				
Ohio	37	19	5	24	2	12	10	6	7	10	1			
Oklahoma	21	1		1	0		1			1				
Oregon	16	2	1	3		2	1	3						
Pennsylvania	88	77	30	107	16	81	10	21	7	73	6			
Rhode Island	1													
S. Carolina	2													
S. Dakota	12	16		16	1	15		3		13				
Tennessee	10	1		1			1	1						
Texas	5													
Utah	6	12		12	0	4	8			12				
Vermont	28	59	16	75	11	61	3	47	5	20	2	1		
Virginia	20	8	6	14	3	10	1	7	4	3				
Washington	12	3		3		1	2	1	2					
West Virginia	9		1	1			1	1						
Wisconsin	131	288	87	375	22	264	108	30	104	219	3	10		9
Wyoming	1													
Totals	1112	914	381	1295	121	919	274	302	245	700	14	16	5	13

*See note - Table 2

TABLE 2.- Summary of Proved-Sire Work in Dairy Herd-Improvement Associations Up to January 1, 1931 (continued)

	Number of Dam and Daughter Comparisons Received			Number of Sires Partly Proved up to January 1, 1931							
					Breed*						
tate	To 1/1/29	During 1929	During 1930	Total	J	G	H	A	BS	RP	SH
Arizona	2			2			2				
Colorado	30			16	7	2	7				
Connecticut		4	1	3		3					
Delaware			7	6	6						
Goergia	5			4	4						
Idaho	516		581	238	80	26	131	1			
Illinois	505		173	292	85	38	140		27		2
Indiana	527	72	434	378	182	57	124	4	1		10
Iowa	883	311	1,117	807	116	95	489	13	37	9	48
Kansas	669	72	561	305	84	4	182	31	2		2
Kentucky	12	26	77	46	28	3	15				
Louisiana	8		8	11	11						
Maryland	134		110	60	19	27	11	3			
Massachusetts	54	12	77	80	23	18	25	10			4
Michigan	2,148	460	639	1,228	358	201	625	9	21	3	11
Minnesota	1,172	213	821	875	87	181	526	11	19	3	48
Mississippi	68		7	28	27		1				
Missouri	291	114	232	285	149	32	104				
Montana	75		7	41	11	6	23		1		
Nebraska	150	29	171	176	28	20	119	3	2		4
Nevada	64			14	1		12	1			
New Hampshire	104		103	36	14	1	9	6			6
New Jersey	140	49	191	215	11	35	169				
New Mexico	20	10	32	18		1	17				
New York	42	5	157	113	21	9	70	8	5		
N. Carolina	14		5	9	3	6					
N. Dakota	97	1	19	37	1	3	28				5
Ohio	444	63	147	292	135	33	117	6			1
Oklahoma	20	14	21	28	18	3	4	1	1		1
Oregon	107	14	46	84	48	18	15	1	2		
Pennsylvania	1, 257	554	717	919	134	199	516	34	16		20
S. Carolina			6	5		5					
S. Dakota	225	78	64	140	15	14	89	10	4	1	7
Tennessee	22		26	27	24	2	1				
Texas	1			1	1						
Utah	152		45	36			8	28			
Vermont	655	230	415	310	166	45	77	16	2		4
Virginia	175		69	81	29	13	35				4
Washington	90		4	44	9	12	22	1			
West Virginia	14	15	55	50	29	8	11	1	1		
Wisconsin	4,008	941	1,648	1,960	130	513	1177	20	73	1	46
Totals	14,900	3,287	8,793	9,300	2,094	1633	4,901	218	214	17	223

* J - Jersey	BS - Brown Swiss
G - Guernsey	RP - Red Polled
H - Holstein	SH - Shorthorn
A - Ayrshire	

TABLE 3.- Information on Sires Proved in 1930

STATE	Number of Bulls Proved										
	Living	Dead	No Report	Total	By Breed*						
					J	G	H	A	BS	RP	SH
Idaho	17	30	16	63	18	10	35				
Illinois		4		4	2	2	0				
Indiana	2	7	3	12	7	2	3				
Iowa	6	35	3	44	5	9	29			1	
Kansas			16	16	2		13	1			
Kentucky	2	3		5	2	1	2				
Maryland		1	4	5	3	2					
Massachusetts		2		2	2						
Michigan	2	16	5	23	10	2	11				
Minnesota	4	9	11	24	6	5	10				3
Missouri	2	5		7	4	1	2				
Nebraska		5		5	1		4				
New Hampshire	1	7		8	4		4				
New Jersey	1	5	6	12			12				
New Mexico			3	3			3				
New York		1	1	2	1		1				
Ohio		2	3	5		2	2	1			
Oregon			1	1	1						
Pennsylvania	4	18	8	30	5	3	22				
Vermont	3	10	3	16	6	1	7	1	1		
Virginia	2	3	1	6	3	1	2				
West Virginia			1	1	1						
Wisconsin	8	53	26	87	5	26	48		6		2
Total	54	216	111	381	88	67	210	3	7	1	5

* J - Jersey
G - Guernsey
H - Holstein
A - Ayrshire
BS - Brown Swiss
RP - Red Polled
SH - Shorthorn

TABLE 4.-Information on Sires Partly Proved in 1930, By Three and Four Dam and Daughter Comparisons

State	Three dam and daughter comparisons, by breed*							Four dam and daughter comparisons by breed*						
	J	G	H	A	BS	RP	SH	J	G	H	A	BS	RP	SH
Idaho	2		1					2	2	3				
Illinois								1						
Iowa	9	7	17		2		2	5	2	18	1			1
Kansas			8	1				2		6				
Kentucky	1		1					1						
Massachusetts	1		2											
Michigan	9	2	12					5	2	5				
Minnesota		2	3		1					2				
Mississippi	1													
Missouri	3	1	2					1						
Nebraska	1	2	1							5		1		
New Hampshire									1	1				
New Jersey		5	3						3					
New Mexico			1							1				
New York		1	3							2				
North Carolina									1					
Ohio			1					3		1				
Oklahoma	1							1						
Oregon												1		
Pennsylvania		10	10	1	3			2	1	6	1			
South Dakota		1	5					1		1				
Vermont	1	1	3							4		1		
Virginia		1												
West Virginia	2	2												
Wisconsin	3	8	23		1			1	6	22				
Total	34	43	96	2	7		2	25	18	77	2	3		1

* J - Jersey
G - Guernsey
H - Holstein
A - Ayrshire
BS - Brown Swiss
RP - Red Polled
SH - Shorthorn

TABLE 5.-Total Number of Sires Partly Proved in 1930 By One or More Dam and Daughter Comparisons

STATE	BREED*							
	TOTAL	J	G	H	A	BS	RP	SH
Connecticut	1		1					
Delaware	6	6						
Idaho	96	36	12	48				
Illinois	73	33	14	18		8		
Indiana	128	66	16	39		1		6
Iowa	318	48	36	190	6	13	3	22
Kansas	80	21	2	51	4			2
Kentucky	31	22		9				
Louisiana	7	7						
Maryland	23	6	14	3				
Massachusetts	40	10	12	14	4			
Michigan	159	65	17	67		7		3
Minnesota	292	34	55	181	1	6	1	14
Mississippi	5	5						
Missouri	83	31	11	41				
Montana	5	2		3				
Nebraska	63	12	7	39		2		3
New Hampshire	11	4	1	1	5			
New Jersey	132	10	14	108				
New Mexico	5			5				
New York	86	16	8	55	6	1		
North Carolina	1		1					
North Dakota	11	1		8				2
Ohio	60	26	7	23	4			
Oklahoma	11	6	3	2				
Oregon	21	14	2	4		1		
Pennsylvania	218	20	69	112	8	6		3
South Carolina	5		5					
South Dakota	30	2	2	20	1	4		1
Tennessee	17	15	2					
Utah	8			8				
Vermont	64	27	9	22	4			2
Virginia	15	6	2	6				1
Washington	3	2	1					
West Virginia	30	20	1	9				
Wisconsin	293	21	61	188	2	15		6
Totals	2,431	594	385	1,274	45	64	4	65

* J - Jersey
G - Guernsey
H - Holstein
A - Ayrshire
BS - Brown Swiss
RP - Red Polled
SH - Shorthorn

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Dairy Herd-Improvement Association Letter Vol. 7 No. 4

APRIL 1931

THE ACCURACY OF DAIRY HERD-IMPROVEMENT ASSOCIATION RECORDS

The accuracy of the records of Dairy Herd-Improvement Associations in calculating the monthly production of cows has sometimes been questioned, largely because tests are not made and weights are not taken of every milking but the milk is usually weighed and tested only one day each month. In order to have an accurate record of a cow's production, every milking should be carefully weighed and tested, but such a procedure would add greatly to the expense and place testing beyond the reach of many dairymen.

The purpose of keeping monthly production and feed records on the Dairy Herd-Improvement Association plan is to furnish records which are sufficiently near the actual amount of milk and butterfat produced and feed consumed to show the utility value of each cow of producing age in the herd. With this knowledge it is possible to weed out unprofitable cows and feed the others according to their producing ability.

While one could not expect to get accurate records by taking samples and testing one day's production each month, it is believed that such records are amply sufficient for practical purposes. In order to measure the accuracy of Dairy Herd-Improvement Association records, the Bureau of Dairy Industry has made a comparison of the actual butterfat production of a group of cows with the estimated production based on one day's production per month and one day's production every other month; also the actual butterfat production of this group of cows was compared with the results of other short-cut methods of testing in order to determine the accuracy of those methods.

The following methods of testing were compared with the actual records:

(1)-The present Dairy Herd-Improvement Association method, by which the milk is weighed and tested one day each month.

(2)-The milk is weighed 4 days each month and tested one day in the middle of each two-month period. In this method the days on which the milk is weighed are one week apart.

(3)-The milk of every milking is weighed and the milk is tested at the middle of each two-month period.

(4)-The milk of every milking is weighed and the milk is tested at the middle of each three-month period.

(5)-The milk is weighed and tested on the middle day of each two-month period.

(6)-The milk is weighed and tested on the middle day of each three-month period.

(7)-The milk of every milking is weighed and the milk is tested on the middle day of each month.

The table below shows the results of the comparisons:

Method No.	Average error in butterfat production	Number of times the error was 5 per cent or more	Widest variation of any individual cow record
	Per cent		Per cent
1	2.91	16	8.3
2	3.12	15	10.7
3	3.01	12	9.1
4	4.59	25	20.0
5	3.80	24	12.5
6	6.78	42	21.5
7	2.75	4	10.7

This table gives the average error of each method, the number of times the error was 5 per cent or more, and the widest variation of any individual cow record. From this table the reader can get some idea of the comparative accuracy of the various methods.

Other data are available which show almost identical results. The owner of one of the largest breeding establishments in the United States had an opportunity to compare the Dairy Herd-Improvement Association records with official records made in his herd. The Dairy Herd-Improvement records were made by the regular tester, and the official records were supervised by the Agricultural College Officer in charge of official testing

The breeder writes as follows:

> It may be of interest to you to know that the cow-tester's records are within 3 per cent of the actual records. His costs of feed throughout the year are very accurate, as you know we weigh every feeding for each cow and weigh and test the milk regularly for all the cows, which gives an excellent check against Dairy Herd-Improvement Association records. If anyone is skeptical as to the accuracy of his production costs, this information might be of value to you. The testers' records are sometimes over ours and sometimes under ours, but the average works out very accurately at the end of the year.
>
> With cows on official test we also get a very good chance to compare the production records of the tester with the actual records, and there is almost no variation. In this case the tester takes but one sample of one day's milking, whereas the official tester takes a sample of each milking covering the entire month and the total fatfor the month seldom varies as much as 2 per cent, and in such cases only when a cow becomes sick at or near the time that the tester takes the sample.

According to these data no dairyman need hesitate to join a Dairy Herd-Improvement Association becuase samples and weights of milk are not taken every day. A 2 per cent variation would make a difference of only 12 pounds of butterfat on a 600-pound yearly record, and a difference of only 3 pounds on a 150-pound yearly record, a variation that would not materially change the classification of the individual cows in the herd.

IDENTIFICATION OF COWS ON TEST IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

When the work of testing began the plan called for little more than the production and feed records of the individual cows in the herd. Since it has been found possible to prove the value of the herd sire through the records of dam-and-daughter comparisons, testing has taken on a new meaning. Proving the sire in many cases has become the most important feature of record keeping, and the members of the associations who do not give their attention to it are overlooking a large part of the benefits of testing.

The Bureau of Dairy Industry tabulates approximately 400,000 individual cow records each year, and through these records little more than a thousand sires have been proved. Instead of a thousand proved sires, there should be several thousand. One of the greatest stumbling blocks in proving sires is the difficulty in identifying the individual cows on test. The blank (BDI-46) on which the records of individual cows are reported contains the space for all information needed and should be fully filled in. If the information is available it requires very little time to record it, and if the cows can be readily identified the records are reliable and may be of great value to the dairyman.

Many different methods of identification have been used, such as color markings, diagrams, or photographs. These may suffice in breeds of broken color, but sketches and photographs will not positively identify animals of solid colors. Ear tags and chain with tag have been used with much success, yet many have been lost, which has caused some confusion in transfer of animals. Perhaps the tattoo marks inside the ear are as satisfactory a means of identification as any known at the present time; the cost is small and the results are permanent if the tattooing is properly done.

Tattooing should be done soon after the calf is born and if properly done it will last throughout the life of the animal. A herdbook should be provided, in which the numbers of the animals and other data required to fully identify the animal should be recorded. Such a procedure may prove most valuable to the herd owner, and would certainly be of great assistance to the tester in identifying the cows on test and in the work of proving sires.

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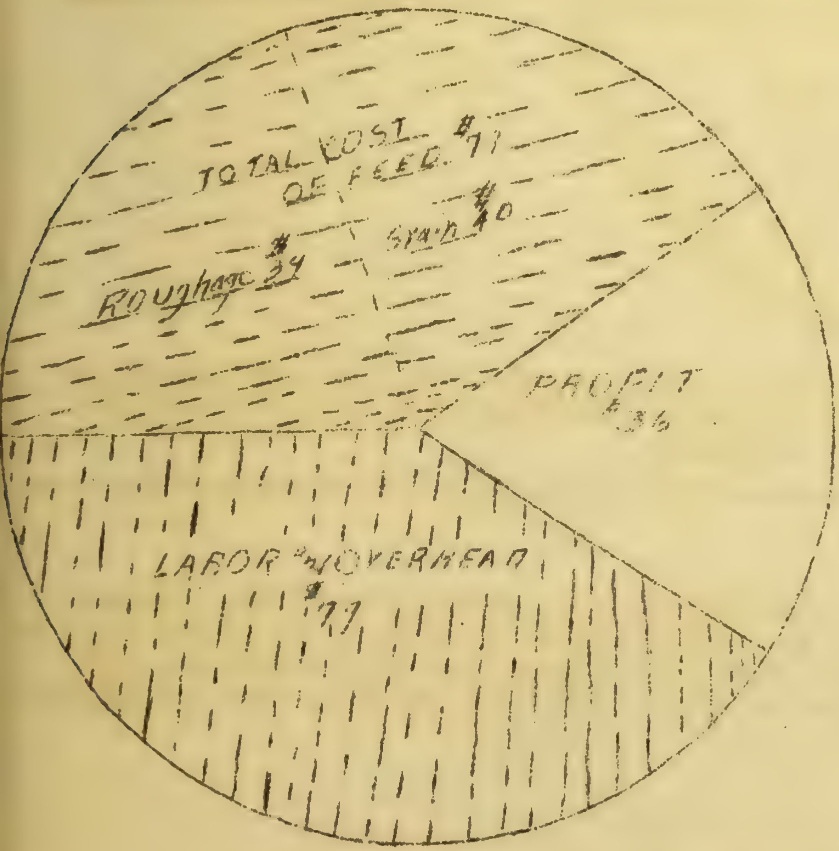
Dairy Herd-Improvement Association Letter Vol. 7 No. 5

MAY 1931

PRODUCTION COSTS AND NET PROFITS

A tabulation of the yearly production records of more than 194,000 cows on test in Dairy- Herd-Improvement Associations, shows a close relation between the costs of production and net profit. Figure 1 illustrates this relationship.

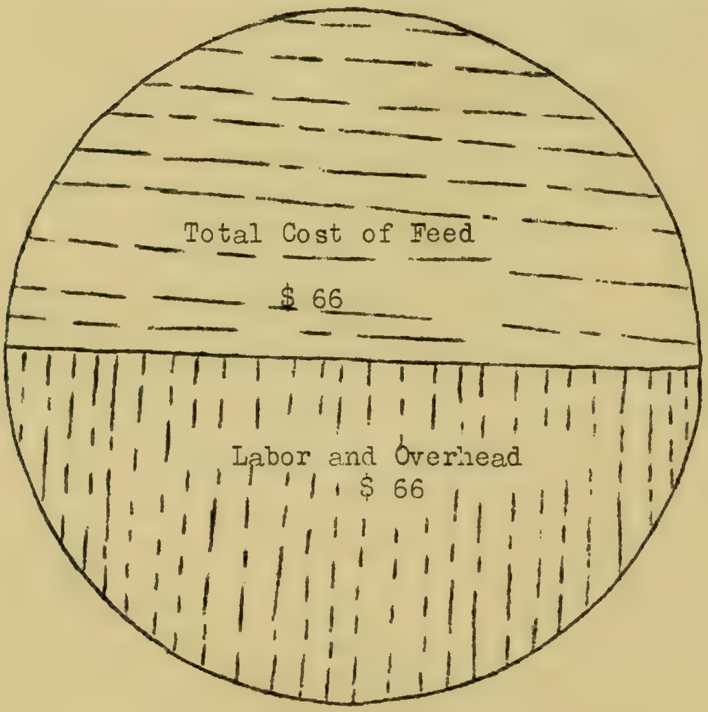


Butterfat production -- 298 lbs.
Value of product -- $194
Cost of roughage -- $39
Cost of grain ----- $40
Total feed cost --- $79
Total cost of production --- $158
Net profit -------- $36

FIG.1.-- Relation between cost of production and net profit of the average Dairy Herd-Improvement Association cow.

This group of cows produced, on an average, 298 pounds of butterfat returned a gross income of $194, and consumed $79 worth of feed. Feed cost, however, is only part of the production cost, as other studies show that the costs of labor and overhead combined are within certain limits, approximately equal to the cost of feed. The total cost, therefore, would be $158, leaving a net profit of $36 per cow.

Figure 2 illustrates the relation between the cost of production and the net profit of the cows in Dairy Herd-Improvement Associations producing 200 pounds of butterfat each.

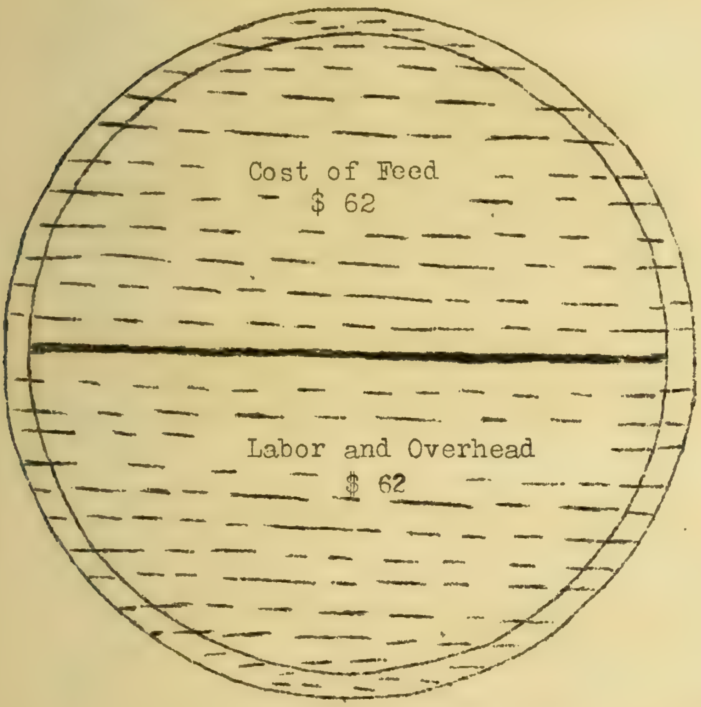


Butterfat production	200 lbs.
Value of product	$132
Cost of roughage	$ 36
Cost of grain	$ 30
Total feed cost	$ 66
Total cost of production	$132
Net profit	NONE

FIG. 2.-- Relation between cost of production and total income returned by the Dairy Herd-Improvement cows producing 200 pounds of butterfat.

The cows in the group producing 200 pounds of butterfat returned a gross income of $132 and consumed $66 worth of feed. If an amount equal to feed costs is charged for labor and overhead, the total production cost was $132. The income from these cows only paid for their feed and care and returned no profit.

In the Dairy Herd-Improvement Associations there are a large number of cows that produce only 180 pounds of butterfat, which is also the estimated average production of all cows in the United States. Figure 3 illustrates the gross income of the cows in Dairy Herd-Improvement Associations that produce 180 pounds of butterfat.



Value of product ---- $120
Cost of feed -------- $ 62
Overhead & labor ---- $ 62
Total cost of
production ------ $124
LOSS --------------- $ 4.

The inner circle represents Gross Income, the outer circle Total Costs.

FIG.3.-- Relation between cost of production and total income returned by the Dairy Herd-Improvement Association cow producing 180 pounds of butterfat.

The cows producing 180 pounds of butterfat returned a gross income of $120. It costs $66 for feed and $66 for labor and overhead, or a total production cost of $124. The income from these cows lacked $4.00 of paying for their feed, labor, and overhead. In Figure 3 the inner circle represents gross income and the outer circle represents the total production costs. According to these studies the average cow in the United States was a liability instead of an asset in 1929, when all costs of production were considered.

THE GOPATIS CONTEST

Gopatis Contest No.2, the State Supervisors' Contest, is open to the supervisors of Dairy Herd-Improvement Associations in every State. It was thought that this contest would create a greater interest in Dairy Herd-Improvement Association work and encourage State supervisors in their efforts in analyzing and summing up the year's work in the State.

At the time the contest was outlined it was thought that all States would have an equal chance to win, regardless of the number of associations. After holding two contests it has been found that the States having a large number of associations have a slight advantage over the States having only a few associations. Perhaps that should be the case within certain limits, but not to the extent that it would bar altogether the States with comparatively few associations.

Perhaps it may be possible to equalize matters by using percentages instead of numbers, or by adding some other headings. At any rate we would be pleased to have suggestions from the State supervisors themselves.

As the Contest is now outlined the standing of the States is determined on the following points:

A.- Number of Dairy Herd-Improvement Associations in active operation within the State.

B.- Percentage of cows on test in the State.

C.- Percentage of proved bulls per number of cows on test.

D.- Number of dam-and-daughter comparisons per number of herds on test.

E.- Average butterfat production of cows on test in Dairy Herd-Improvement Associations in the State.

All suggestions will be carefully considered in conference with the President of the Guild, Mr. Paul Burchard, who has suggested that some revision of the rules may be advisable.

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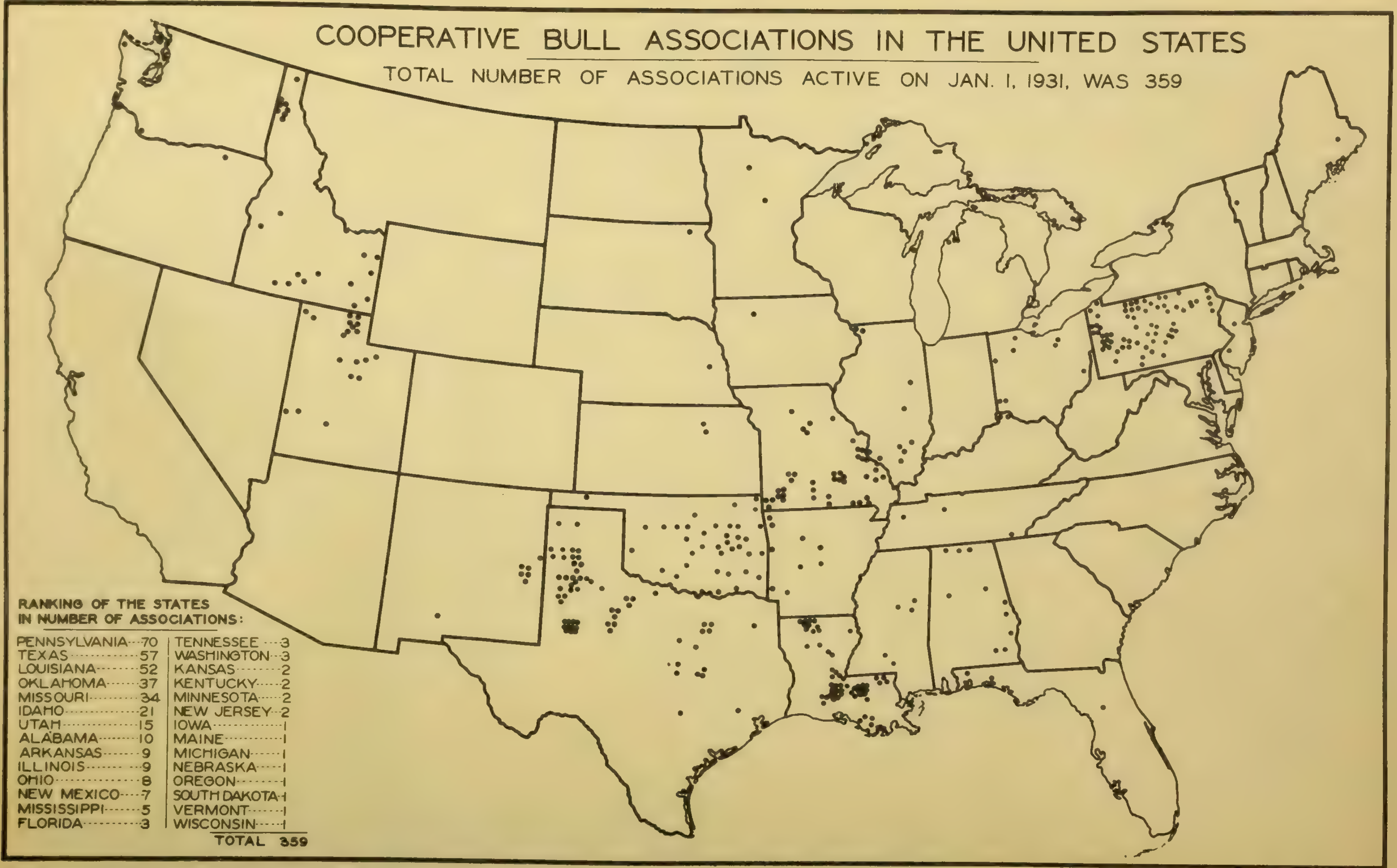
COOPERATIVE BULL ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER OF ASSOCIATIONS ACTIVE ON JAN. 1, 1931, WAS 359



RANKING OF THE STATES IN NUMBER OF ASSOCIATIONS:

PENNSYLVANIA	70	TENNESSEE	3
TEXAS	57	WASHINGTON	3
LOUISIANA	52	KANSAS	2
OKLAHOMA	37	KENTUCKY	2
MISSOURI	34	MINNESOTA	2
IDAHO	21	NEW JERSEY	2
UTAH	15	IOWA	1
ALABAMA	10	MAINE	1
ARKANSAS	9	MICHIGAN	1
ILLINOIS	9	NEBRASKA	1
OHIO	8	OREGON	1
NEW MEXICO	7	SOUTH DAKOTA	1
MISSISSIPPI	5	VERMONT	1
FLORIDA	3	WISCONSIN	1
		TOTAL	359

The association is organized by farmers for the purpose of jointly owning, using, and exchanging purebred bulls. It consists of at least three divisions, called blocks. Each block has one or more members. One bull is assigned to each block. To prevent inbreeding, each bull is moved to the next block every two years. If there are three blocks, and if the bulls live until each has made one complete circuit, no new bulls need be purchased for six years. By this exchange of bulls, each member of the association has the use of purebred bulls for a period of years, at a cost of only a small part of the purchase price of one bull. The County Agricultural Agent, the Dairy Specialist of the State College of Agriculture, or the U. S. Bureau of Dairy Industry, Washington, D. C., will gladly give information on how to organize one of these associations.

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Dairy Herd-Improvement Association Letter
Vol. 7 - No. 6
July 1931

DAIRY HERD-IMPROVEMENT ASSOCIATIONS

PRODUCTION PER COW INCREASES

In the United States on January 1, 1931, there were 1,112 Dairy Herd-Improvement Associations with 510,714 cows on test in 26,308 herds. This is about 2.2 per cent of all the dairy cows in the country.

Tabulations made by the Bureau of Dairy Industry of 942 associations, which included the 1930 records of 315,359 cow-years, or approximately 400,000 cows, show that the average production was 7,608 pounds of milk, containing 302 pounds of butterfat per cow.

This is an increase of six pounds of butterfat over 1929, and more than 67 per cent above the average of all dairy cows in the United States, which has been estimated at 4,600 pounds of milk containing 180 pounds of butterfat.

The following table shows the number of records tabulated, and the average production per cow by years, from 1924 to 1930. In 1930 there was a drop of three cents per pound in the price received for butterfat, which resulted in lowering the gross returns $3.00 per cow, and in lowering the income over feed cost $3.00 per cow. The feed costs remained the same as in 1929.

AVERAGE PRODUCTION OF BUTTERFAT PER COW FOR COWS IN
DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES.

Year	Associations tabulated	Number of records tabulated	Milk per cow	Butterfat per cow	Price of butterfat per pound	Gross income	Cost of roughage	Cost of grain	Feed Cost	Income over feed cost
	Number	Cow-years	Pounds	Pounds						
1924	129	32,091	7,092	279	$ .58	$161	$37	$30	$68	$94
1925	330	98,704	7,189	284	.55	156	38	29	67	89
1926	476	127,617	7,316	289	.59	170	39	31	69	101
1927	532	142,084	7,410	293	.63	184	39	33	72	111
1928	656	201,590	7,464	295	.66	194	39	38	77	116
1929	824	262,996	7,451	296	.67	197	39	41	80	117
1930	942	315,359	7,608	302	.64	194	39	41	80	114

LOCATION OF DAIRY-HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

The map attached herewith shows the number and location of Dairy Herd-Improvement Associations in the United States.

There are one or more associations in 45 of the States. The largest number is in the Great Lakes region. The following 10 States, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York, cover only 18 per cent of the total area of the United States, yet they have 48 per cent of the associations and 51 per cent of all cows on test in Dairy-Herd-Improvement Associations.

It is interesting to note also that these States have 46 per cent of the total population of the United States, according to the 1930 census. Other States outside of this region have made notable progress in testing. California, with approximately 600,000 cows, has 12.9 per cent of them on test; Arizona 8 per cent; and New Jersey 7 per cent; while the United States as a whole has only 2.2 per cent of all cows on test.

It has been demonstrated for more than 25 years that Dairy Herd-Improvement Associations can make dairying more efficient and profitable, and it seems strange that more dairymen do not take advantage of the opportunity to align themselves with this movement. There is room in every State for many more associations than there are now.

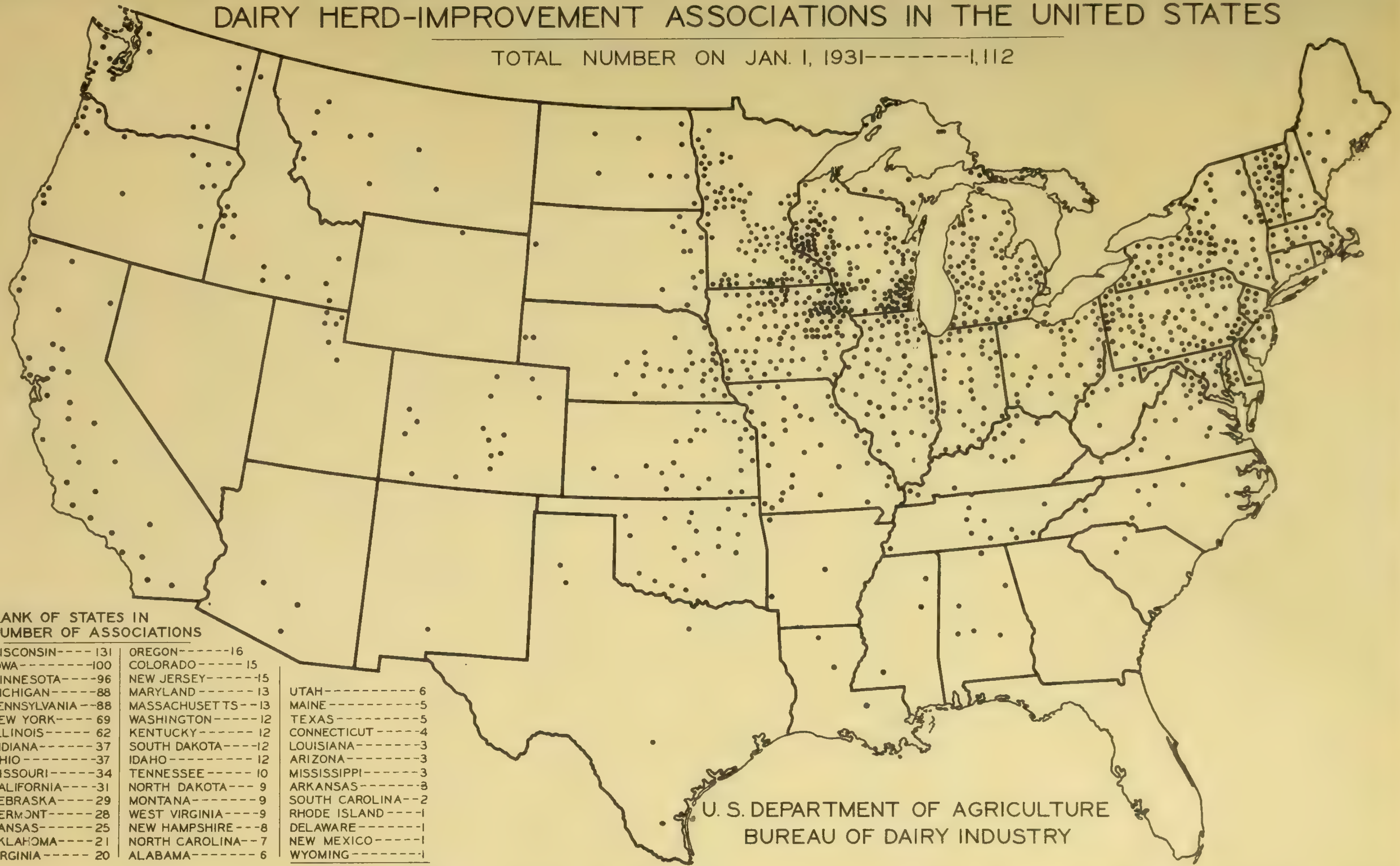
BULL-ASSOCIATION BULLS INCREASING PRODUCTION OF DAUGHTERS

Up to June 24, 1931, the Bureau of Dairy Industry had received the yearly milk and butterfat records of 1,578 daughters of 350 Bull-Association bulls. These daughters produced, on an average, 10,204 pounds of milk and 406 pounds of butterfat. The dams of the daughters produced, on an average, 9,772 pounds of milk and 381 pounds of butterfat. The daughters, therefore, on an average, excelled their dams by 432 pounds or 4.4 per cent in milk production, and 25 pounds, or 6.6 per cent in butterfat production. This is not a large increase, either in pounds or per cent, but it is very satisfactory, considering that the dams to which these bulls were mated produced, on an average, more than twice as much milk and butterfat as is produced by the average cow in the United States, and about 28 per cent more milk and butterfat than is produced by the average cow in Dairy Herd-Improvement Associations.

Thus far the records of one or more daughters have been received for slightly more than one-fifth of the bulls being used in Bull Associations, for according to reports received from 28 States on January 1, 1931, there were 359 active associations, owning cooperatively 1,609 dairy bulls. The splendid showing of the Bull-Association bulls on which the records of the daughters have thus far been received should be an added incentive for securing the yearly records of the daughters of a larger number of these bulls, as well as for organizing more associations. Bull Associations provide the most practical and economical way of keeping the bull without the necessity of inbreeding until the records of his daughters prove his value.

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER ON JAN. 1, 1931--------1,112



RANK OF STATES IN NUMBER OF ASSOCIATIONS

WISCONSIN	131
IOWA	100
MINNESOTA	96
MICHIGAN	88
PENNSYLVANIA	88
NEW YORK	69
ILLINOIS	62
INDIANA	37
OHIO	37
MISSOURI	34
CALIFORNIA	31
NEBRASKA	29
VERMONT	28
KANSAS	25
OKLAHOMA	21
VIRGINIA	20
OREGON	16
COLORADO	15
NEW JERSEY	15
MARYLAND	13
MASSACHUSETTS	13
WASHINGTON	12
KENTUCKY	12
SOUTH DAKOTA	12
IDAHO	12
TENNESSEE	10
NORTH DAKOTA	9
MONTANA	9
WEST VIRGINIA	9
NEW HAMPSHIRE	8
NORTH CAROLINA	7
ALABAMA	6
UTAH	6
MAINE	5
TEXAS	5
CONNECTICUT	4
LOUISIANA	3
ARIZONA	3
MISSISSIPPI	3
ARKANSAS	3
SOUTH CAROLINA	2
RHODE ISLAND	1
DELAWARE	1
NEW MEXICO	1
WYOMING	1
TOTAL	1,112

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Dairy Herd-Improvement Association Letter Vol. 7 No. 7

September 1931

WHY COWS ARE CULLED

The reports of dairy herd-improvement associations indicate that a large percentage of the cows are culled from the herds during each testing year. In some instances the percentage seems so large that it would indicate that some unusual disaster had taken place. At any rate, the culled cows represent a huge wastage, and steps should be taken to ascertain the causes thereof.

The reports received do not generally indicate in detail whether the cows were disposed of on account of low production, disease, old age, or for some other reason. If the final reports showed that this wastage of cows was caused by low production or by disease, a vigorous campaign could be waged to correct the cause.

The first step to take in attacking this problem is to assemble the data. This can be done without much effort by the testers in their monthly reports to the State dairy field agent. The Bureau of Dairy Industry would undertake to tabulate the reports from every State that wishes to cooperate by gathering the information.

There should be no objection to furnishing this information, for no herds or individual associations need be mentioned in summarizing the report. The data required would be as follows:

Cows Culled or Removed from the Dairy Herd on Account of:

Tuberculin Test
Abortion
Old Age
Udder Trouble (State nature)
Death

Low Production
Sterility
Accident
Sale for Dairy Purposes
or Other Reasons to be Stated.

COWS AND COW YEARS

Many times we have been asked the question, "What is meant by the term 'cow-year'?" The term "cow-year" as used in connection with dairy herd-improvement association records means one cow on test one year, two cows on test one-half year each, three cows on test one-third of a year each, or 12 cows on

test one-month. In other words, it means twelve "cow-months." Therefore, the difference between the terms "cow" and "cow-year" may be explained by saying that the number of cows in the herd is the total number of different individual cows and that the number of cow-years is the number of cow-months divided by 12.

On January 1, 1931 there were 1,112 dairy herd-improvement associations in active operation. In these associations there were approximately 510,000 cows on test. The Bureau of Dairy Industry received records from 942 associations that completed their testing year in 1930. The number of cow-years of the cows on test in these 942 associations totaled 315,359. As there were 459 cows reported as the average number of cows in all dairy herd-improvement associations on January 1, 1931, we may assume that the number of different cows actually on test in the 942 associations reporting was approximately 942 times 459 or 432,378. The difference, therefore, between the number of cow-years and the number of cows actually on test was the difference between 315,-359 cow-years and 432,378 cows.

Obviously the number of cows is always as great or greater than the number of cow-years. If we used only the records of cows on test 12 months the number of cows and the number of cow-years would be identical. If we include short time records with the 12-month records the number of cow-years is always less than the total number of cows, and usually it is in the proportion shown above. In other words, it takes about 432 cows on test all the way from one to 12 months in our dairy herd-improvement associations to equal 315 cow years.

The term "cow-years" is used at present only in making herd and association summaries and in getting totals for the year. In all other tabulations such as the "relation of butterfat production to income over cost of feed," "relation of season of freshening to other factors," and "comparison of purebreds and grades," only 12-month records are used. Under those circumstances there is no difference between the terms "cows" and "cow-years."

A NEW RECORD FOR SAFETY

At the recent conference of Dairy Herd-Improvement Association testers, held at Blacksburg, Virginia, which was attended by a representative of the U. S. dairy extension service, Department of Agriculture, the tester for the Orange County Dairy Herd-Improvement Association reported that 100 per cent of the herd sires in his association were housed in safe-keeper bull pens. The U. S. Bureau of Dairy Industry, which for years has been advocating the use of safe-keeper pens for mature bulls, and has designed safe-keeper pens which are in extensive use among dairy farmers, asks the question -- "Are there other associations that can duplicate this record?" If there are, the bureau will be glad to hear from them. This excellent record means that these herd sires will be kept under conditions which should insure a long breeding life, as well as safety for the herd owner and his family.

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Cull by Test

DAIRY HERD IMPROVEMENT ASSOCIATIONS

Keep the Best

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Dairy Herd-Improvement Association Letter. Vol. 8, No. 2

February 1932

SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1932

(as reported by dairy specialists)

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Like most other business enterprises, in the calendar year 1931, the progress in testing of dairy cows by cooperative dairy-herd improvement associations was somewhat retarded. As compared with the calendar year 1930 there was, approximately, a 10% loss, both in the number of active associations and in the number of cows on test.

Many of the States, however, succeeded in keeping all their associations active, and some have made slight gains. The States showing an increase under prevailing conditions are to be highly commended.

On January 1, 1931, there were 1,112 associations with 510,714 cows on test. On January 1, 1932, the number of associations was 1,005, with 427,044 cows on test in 44 States.

The summary shows that there were fewer herds and fewer cows per association. However, the herds were slightly larger than on January 1, 1931. With low market prices for dairy products, records of production and cost of production become more important than ever before. With a close study of the records of each cow in the herd it is not difficult to locate and eliminate the unprofitable cows and feed the others according to production.

A few dollars invested in a dairy-herd improvement association may return many times the amount invested, by lowering the cost of production.

(Up to and including 1923, data were collected on July 1. Beginning with 1924 reports are made by calendar years. The last eight columns give data for January 1.

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31
Mich1/	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	94	90	88
Me.	3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0	5	5
N.Y.	1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	54	51	69
Vt.		2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23	23	28
Iowa		2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86	101	101	100
Cal.		1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30	35	32	32	33	31
Wis.		9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166	154	142	131
Neb.		1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23	28	29
Colo.			1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	14	15	15
Pa.			1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43	49	65	76	88	88
Ohio			1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29	39	38	37
Wash.			1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12	15	12
Md.				1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8	9	13
Ill.				4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51	59	62
Minn.				3	7	10	9	11	22	26	23	21	19	23	37	55	88	84	85	105	117	120	96
N. H.				1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	4	7	7	8
Ore.				1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14	14	16
Utah				1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5	8	6
Mass.				2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11	11	13
Va.				2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	20	20	20	20
Kan.						1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	20	22	25
Ind.						2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	41	51	37
Ky.						1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8	12	12
Mo.							2	1	2	5	4	5	6	7	11	12	13	19	21	25	34	36	34
N. J.							2	3	4	8	9	9	12	8	6	6	6	9	11	17	18	16	15
W. Va.							1	1	3	1	1	1	3	5	5	6	3	3	3	4	6	7	9
Conn.							1	3	6	3	0	0	1	0	2	1	1	2	4	5	3	4	4
N. C.							2	0	0	0	0	0	2	2	0	0	2	5	5	5	8	7	7
La.							1	0	0	0	0	0	1	0	0	0	0	0	1	2	2	2	3
S. Dak.							1	1	3	3	0	0	0	0	0	4	11	9	10	8	14	12	12
Nev.								1	0	1	0	0	0	1	1	4	3	1	3	0	1	0	0
Ariz.									2	2	1	0	0	2	1	1	2	1	1	2	3	4	3
R. I.									2	2	0	0	4	4	4	3	0	0	0	0	1	1	1
Del.									2	3	2	2	1	0	0	0	0	0	0	0	1	1	1
Idaho									2	1	1	4	5	6	4	8	8	8	9	12	13	13	12
Miss.									1	0	0	0	0	3	2	1	1	2	0	1	1	2	3
Mont.									1	2	0	0	0	0	0	2	4	3	7	7	8	9	9
Tenn.									1	8	4	6	3	3	4	2	2	2	2	3	7	10	10
N. Mex.										1	0	0	0	1	1	1	0	1	1	2	2	1	1
Wyo.										1	0	1	0	0	0	0	1	0	0	0	1	1	1
Ala.											2	1	3	1	1	0	0	0	1	3	4	7	6
Ga.											1	0	0	0	0	0	0	0	1	1	2	1	0
N. Dak.											1	1	1	2	6	8	5	3	6	4	7	9	9
Okla.												1	1	2	1	3	5	5	5	12	22	25	21
S. C.												1	1	1	0	0	0	0	0	0	1	3	2
Texas												3	0	0	0	0	0	0	1	3	6	7	5
Ark.													1	2	2	2	0	0	0	2	*	1	3
Fla.																					1	2	0
Total	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	1090	1143	1112

1/ Michigan--1 Association in 1906--4 in 1907.

* No report

SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
ACTIVE JANUARY 1, 1932

State	Number of ass'ns	Number of herds	Number of cows	Average per ass'n. Herds	Average per ass'n. Cows	Total dairy cows [1]	Percentage of cows in D.H.I.Ass'ns
Alabama	4	63	2,167	15.8	542	390,000	0.6
Arizona	2	38	1,146	19.	573	42,000	2.7
Arkansas	No report						
California	62	1,459	72,632	23.5	1,172	637,000	11.4
Colorado	15	178	3,826	11.9	255	266,000	1.4
Connecticut	2	43	1,075	21.5	538	113,000	1.0
Delaware	1	22	425	22.	425	35,000	1.2
Georgia	1	11	422	11.	422	336,000	0.1
Idaho	10	263	3,558	26.3	356	194,000	1.8
Illinois	57	1,240	20,975	21.8	368	1,099,000	1.9
Indiana	32	694	11,900	21.7	372	751,000	1.6
Iowa	82	1,823	29,905	22.2	365	1,456,000	2.1
Kansas	18	348	6,397	19.	355	860,000	0.7
Kentucky	8	129	2,783	16.1	348	518,000	0.5
Louisiana	2	42	1,203	21.	601	260,000	0.5
Maine	5	106	1,624	21.2	325	143,000	1.1
Maryland	11	227	4,379	21.6	398	186,000	2.4
Massachusetts	13	286	6,704	22.	516	131,000	5.1
Michigan	69	1,171	15,742	17.	228	850,000	1.9
Minnesota	69	1,274	20,496	18.5	297	1,708,000	1.2
Mississippi	3	28	920	9.3	307	469,000	0.2
Missouri	28	383	7,753	13.7	277	1,030,000	0.8
Montana	8	97	2,213	21.1	277	195,000	1.1
Nebraska	26	421	6,820	16.1	262	700,000	1.0
New Hampshire	9	232	4,802	25.8	533	81,000	5.9
New Jersey	17	367	9,331	21.6	549	120,000	7.8
New Mexico	1	14	867	14.	867	70,000	1.2
New York	79	1,673	33,582	21.2	488	1,411,000	2.7
North Carolina	8	90	3,089	11.2	386	306,000	1.0
North Dakota	5	77	1,676	15.4	335	589,000	0.3
Ohio	36	840	11,177	23.3	310	938,000	1.2
Oklahoma	20	300	6,839	15.	342	716,000	1.0
Oregon	16	368	7,692	23.	493	250,000	3.2
Pennsylvania	85	1,904	31,297	22.4	368	886,000	3.5
Rhode Island	2	65	1,794	32.5	897	21,000	8.5
South Dakota	7	143	2,746	20.4	392	607,000	0.5
Tennessee	8	74	1,584	9.	198	507,000	0.3
Texas	5	88	2,547	17.6	509	1,283,000	0.2
Utah	7	296	3,585	42.3	512	113,000	3.2
Vermont	29	583	12,872	20.1	444	299,000	4.3
Virginia	25	388	12,120	15.5	485	390,000	3.1
Washington	15	260	6,283	17.3	419	300,000	2.1
West Virginia	6	95	1,678	15.8	280	225,000	0.7
Wisconsin	96	2,132	40,943	22.2	426	2,150,000	1.9
Wyoming	1	16	275	16.	275	72,000	0.4
Total	1,005	20,351	427,044			*23,708,000	
Average				20.2	426		1.8

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[1] Estimates of the Bureau of Agricultural Economics.

* 44 States.

(SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS- Continued)

	Jan. 1, 1931	Jan. 1, 1932	Gain or Loss	
Number of associations	1,112	1,005	-	107
Number of herds	26,308	20,351	-	5,957
Number of cows	510,714	427,044	-	83,670
Average herds per association	23.7	20.2	-	3.6
Average cows per association	459.0	425.0	-	33.0
Average cows per herd	19.4	21.0	+	1.6
Number of testing circles	20	21	+	1
Number of cows in testing circles	3,665	3,944	+	279

SUMMARY OF TESTING CIRCLES AS OF JANUARY 1, 1932

State	Number of circles	Number of herds	Number of cows	Average per circle	
				Herds	Cows
Colorado	1	6	78	6	78
Connecticut	1	43	450	43	450
Montana	1	13	154	13	154
Oklahoma	3	96	1,225	32	408
Vermont	3	13	208	4	69
New Jersey	3	73	530	24	176
*Wisconsin	9	91	1,299	10	144
Total	21	335	3,944		
Average				16	188

*Junior Associations

TEN HIGHEST STATES IN DAIRY HERD-IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS.
JANUARY 1, 1931 - JANUARY 1, 1932.

Largest Number of D.H.I.A.'S.		Largest Number of Members	
1931	1932	1931	1932
Wisconsin	Wisconsin	Wisconsin	Wisconsin
Iowa	Pennsylvania	Iowa	Pennsylvania
Minnesota	Iowa	Minnesota	Iowa
Michigan) tie	New York	Pennsylvania	New York
Pennsylvania)	Minnesota) tie	Michigan) tie	California
New York	Michigan)	California)	Minnesota
Illinois	California	New York	Illinois
Indiana) tie	Illinois	Illinois	Michigan
Ohio)	Ohio	Indiana	Ohio
Missouri	Indiana	Ohio	Indiana

Largest Number of Cows in D.H.I.A.'s.		Highest Percentage of All Cows on Test	
1931	1932	1931	1932
California	California	California	California
Wisconsin	Wisconsin	Arizona	Rhode Island
Iowa	New York	New Jersey	New Jersey
Minnesota	Pennsylvania	New Hampshire	New Hampshire
New York	Iowa	Oregon	Massachusetts
Pennsylvania	Illinois	Vermont	Vermont
Illinois	Minnesota	Massachusetts	Pennsylvania
Michigan	Michigan	Pennsyvlania	Oregon) tie
Indiana	Vermont	Rhode Island	Utah)
Vermont	Virginia	Virginia	Virginia

OFFICIALS IN CHARGE OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES

ALABAMA.........	F. W. Burns, Extension Service, College of Agriculture, Auburn.
ARIZONA.........	Clyde F. Rowe, Extension Service, College of Agriculture, Tucson.
ARKANSAS........	W.H. Woodley, Ext. Service, College of Agriculture, Fayetteville.
CALIFORNIA......	G.E. Gordon, Extension Service, College of Agriculture, Berkeley.
COLORADO........	C.A. Smith, c/o State Dairy Commissioner, Fort Collins.
CONNECTICUT.....	A.I. Mann, Extension Service, Connecticut Agricultural College, Storrs.
DELAWARE........	C.A. McCue, Director of Extension, School of Agriculture, Newark.
FLORIDA.........	H.L. Brown, Extension Division,College of Agriculture,Gainesville.
GEORGIA.........	F.W. Fitch, Ext. Div.,Georgia State College of Agriculture, Athens.
IDAHO...........	D.L. Fourt, State House, Boise.
ILLINOIS........	C.S. Rhode, Extension Service, College of Agriculture, Urbana.
INDIANA.........	G.A. Williams, Dept. of Agri.Ext.,School of Agriculture,Lafayette.
IOWA............	Floyd Johnston, Agri.Ext.,Iowa State College of Agriculture,Ames.
KANSAS..........	J.W. Linn, Ext.Div.,Kansas State College of Agriculture,Manhattan.
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LOUISIANA.......	E.W. Neasham, Extension Dept., A. & M. College, Baton Rouge.
MAINE...........	R.F. Talbot, Extension Service, College of Agriculture, Orono.
MARYLAND........	J.A. Conover, Extension Serv.,College of Agriculture,College Park.
MASSACHUSETTS...	C.J.Fawcett, Ext.Serv.,Massachusetts Agricultural College,Amherst.
MICHIGAN........	A.C.Baltzer,Ext.Serv.,Mich. State College of Agriculture,E.Lansing
MINNESOTA.......	Ramer Leighton, Agri. Ext.,College of Agri.,Univ. Farm, St. Paul.
MISSISSIPPI.....	L.A. Higgins, Extension Service, A. & M. College.
MISSOURI........	M.J. Regan. Agri. Ext. Service, College of Agriculture, Columbia.
MONTANA.........	J.O. Tretsven, Ext.Serv.,Montana State College of Agri.,Bozeman.
NEBRASKA........	M.L. Flack,Extension Service, College of Agriculture, Lincoln.
NEVADA..........	V.E. Scott, Agricultural Extension, College of Agriculture, Reno.
NEW HAMPSHIRE...	G.L. Waugh, Extension Service, College of Agriculture, Durham.
NEW JERSEY......	E.J. Perry, Division of Ext.,State College of Agri.,New Brunswick.
NEW MEXICO......	E.E. Anderson, Extension Service, N.M. College of Agriculture, State College.
NEW YORK........	W.T. Crandall, Extension Service, N.Y. State College of Agri., Ithaca.
NORTH CAROLINA..	J.A. Arey, Ext. Service, N.C. State College of Agriculture, State College Station, Raleigh.
NORTH DAKOTA....	E.J. Haslerud, Agri.Ext., N.Dak. Agricultural College, Fargo.
OHIO............	Ivan McKellip, Agri.Ext.Work, College of Agriculture, Columbus.
OKLAHOMA........	D.P. Trent, Dir. of Extension, Okla. A.&M. College, Stillwater.
OREGON..........	R.W. Morse, Ext.Serv., Oregon Agricultural College,Corvallis.
PENNSYLVANIA....	C.R. Gearhart, Agricultural Extension,School of Agri.,State Colleg
RHODE ISLAND....	J.E. Ladd,Extension Service,Rhode Island State College, Kingston.
SOUTH CAROLINA..	C.G. Cushman, Ext. Serv., Clemson Agri. College, Clemson College.
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UTAH............	William Peterson,Dir. of Extension, Agri. College of Utah,Logan.
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VIRGINIA........	W.P. Sadler, Ext. Division, Va. A. & M. College, Blacksburg.
WASHINGTON......	F.E. Balmer, Dir. of Extension, State College of Agri., Pullman.
WEST VIRGINIA...	J.V. Hopkins, Extension Division, College of Agri., Morgantown.
WISCONSIN.......	A.J. Cramer, Agri. Ext. Service, College of Agriculture, Madison.
WYOMING.........	J.R. Neale, Agri. Ext., College of Agriculture, Laramie.

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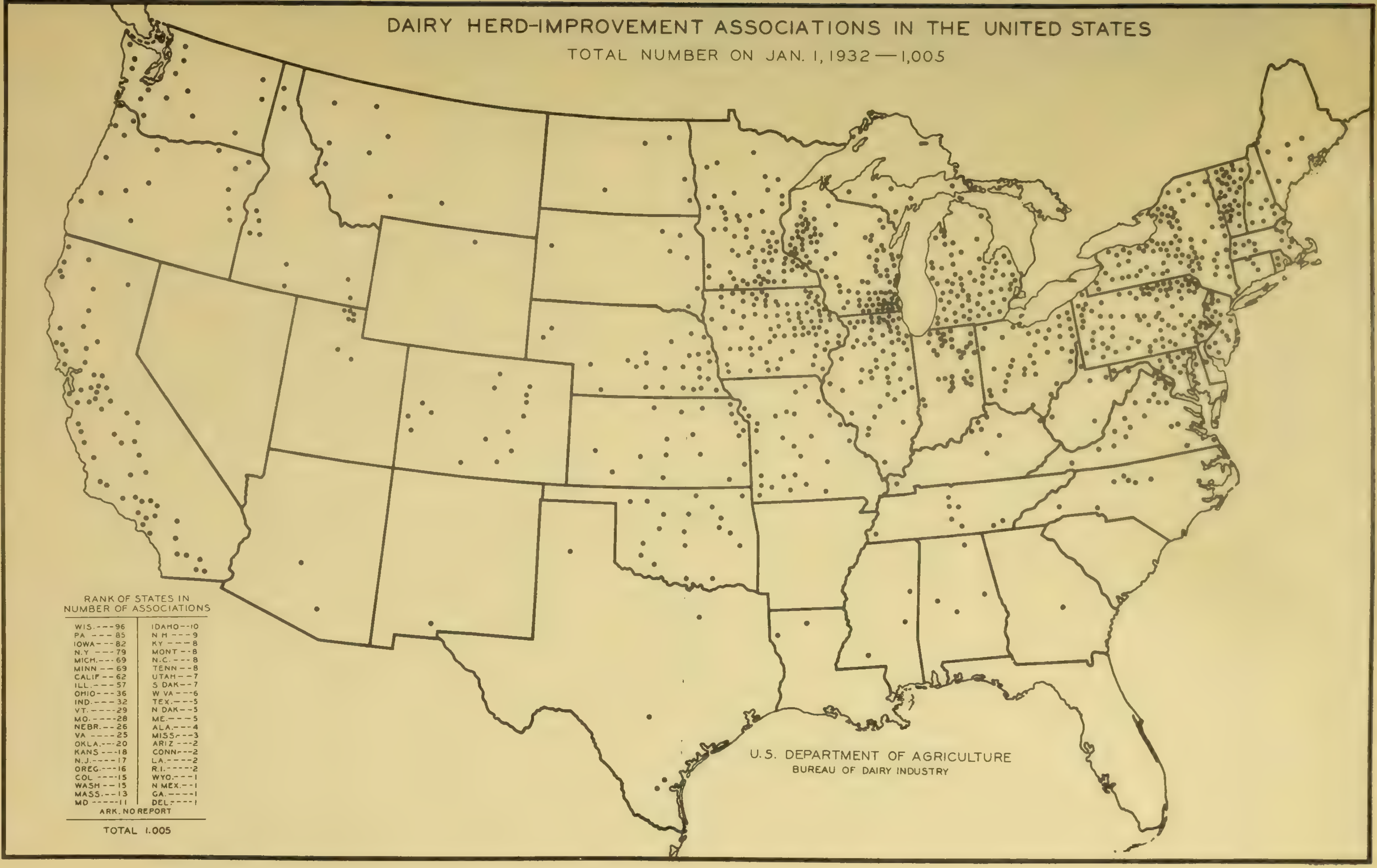
DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER ON JAN. 1, 1932 — 1,005



RANK OF STATES IN NUMBER OF ASSOCIATIONS

WIS.	96	IDAHO	10
PA	85	N H	9
IOWA	82	KY	8
N.Y	79	MONT	8
MICH.	69	N.C.	8
MINN	69	TENN	8
CALIF	62	UTAH	7
ILL.	57	S DAK	7
OHIO	36	W VA	6
IND.	32	TEX.	5
VT.	29	N DAK	5
MO.	28	ME.	5
NEBR.	26	ALA.	4
VA	25	MISS.	3
OKLA.	20	ARIZ	2
KANS	18	CONN	2
N.J.	17	LA.	2
OREG.	16	R.I.	2
COL	15	WYO.	1
WASH	15	N MEX.	1
MASS.	13	GA.	1
MD	11	DEL.	1

ARK. NO REPORT

TOTAL 1.005

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

UNI

Cull by Test

DAIRY HERD IMPROVEMENT ASSOCIATIONS

Keep the Best

BUREAU OF DAIRY INDUSTRY – UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 8, No. 3.

APRIL 1932

MORE ABOUT WHY COWS ARE CULLED

Several months ago we sent requests to all States for information on culled cows. It was thought that such data, when tabulated and analyzed, would to some extent indicate the cause for enormous wastage in raising dairy cows that is taking place each year. With this information available definite plans can be made to meet the situation.

It is a poor business practice to raise heifers to producing age and then find that they are such low producers that they must be discarded. Whether low production or some other reason is responsible for the greatest wastage is problematic. It is for the purpose of determining these facts that reliable data are required. Some of the States have sent in reports, but these are not in sufficient numbers from which to draw definite conclusions.

It was intended that these reports should be made at the end of each association year. When an association finishes a year's work it would be a matter of only a few minutes to go through the records of each herd book and compile the data on the cows that had been discarded during the year. Each tester could combine his herd reports and submit a single report for his association. The associations reports could then be forwarded to the State extension dairyman who would forward a State report to the Bureau of Dairy Industry.

The Bureau of Dairy Industry would undertake to tabulate the State reports and send copies of the nation-wide report to the States. The figures that have already been received promise to disclose some very interesting facts, and it is hoped that every State will be represented in the nation-wide report on this very vital problem.

PROVING DAIRY BULLS BY MEANS OF LACTATION RECORDS

Until recently, dairy bulls have been proved in dairy herd-improvement associations through the use of 12-month records of dams and daughters. The bull has been considered proved when the production records of 5 or more unselected daughters were compared with production records of their dams. Many investigators feel that the accuracy of the work would be considerably increased if lactation records would be used instead of 12-month records.

The 12-month records have been used because they were readily available, all dairy herd-improvement association records having been made and recorded on that basis. It is possible, however, to obtain lactation records in the dairy herd-improvement association work when two or more years' records are available. Instead of adding the monthly records of the dams and daughters from the time the testing year began until the end of the testing year the lactation records would require that the monthly productions be computed from the time each cow freshened until she went dry, providing the lactation period did not extend beyond 12 months from the time the cow freshened.

The question has been asked, "What is to be gained by changing from the 12-month method to the lactation method in proving sires?" Space will not permit a complete discussion of this subject, but the main arguments in favor of the lactation method seem to be about as follows: On a lactation basis, the production record is continuous from the time the cow freshens until she goes dry, while in the 12-month method the production record usually includes parts of two lactation periods with a dry period between.. Sometimes the dry period is abnormally long due to the fact that the two dates of freshening are very far apart. In order to avoid the use of records in which the cow was dry a large part of the year it has been the rule to use only those records where the cow gave milk at least 9 months of the 12-month testing period. In using the lactation method no records would be thrown out on account of the shortness of the lactation. Therefore, this method might possibly serve to point out some facts regarding the length of the lactation period a bull transmits to his daughters.

The lactation method has been used in all advanced register work in determining the yearly production records of dairy cows. In figuring these records to maturity the breed associations have computed the age of the cow from the date of birth to the date of freshening. In using the 12-month records as a basis it has been the practice to figure the age of the animal from the date of birth to the beginning of her 12-month production record. It is difficult to determine whether this is an important argument in favor of the lactation method, but investigators seem to feel that it is of some importance.

It is argued that the lactation records will, on an average, prove more nearly uniform than the 12-month records. In other words, the standard deviations will show less variation in the records of both dams and daughters. A very short preliminary study of records, in which both 12-month records and lactation records were available for the same animals, showed very little difference in the deviations. This study, however, was based on 12-month records in which dry periods were limited to three months or less. This would naturally narrow the standard deviations for the 12-month records, at least to some extent.

It has been claimed that the lactation records would show a higher production for both dams and daughters than is obtained by the 12-month records. The preliminary study just mentioned did not show any particular difference in the quantity produced in either milk or butterfat. Even if the lactation method did show a higher production it would still remain to be proved whether that method is a better measure of the cow's ability to produce.

Arguments have also been advanced in favor of the 12-month records. They may briefly be stated as follows: It is claimed that the work will be slowed down because it is more difficult to get lactation records for both dams and daughters than 12-month records. That is probably true, but if the lactation method gives more accurate results, accuracy should doubtless outweigh number of records. This argument does not seem to be as important as it did at first because those who have sent in lactation records have indicated that the actual additional work needed to compute and copy the lactation records is very small. Some have reported that it requires less than three hours to obtain and copy the five lactation records of dams and daughters necessary to prove a sire. Under the 12-month method less than one bull per association has so far been proved each year. Therefore, if it takes only three hours to obtain these records, the work can not be an excessive burden on anybody. Furthermore, we must remember that it takes some time to obtain and copy the 12-month records, perhaps almost as much time.

It has been said that exact ages can not be obtained for grade cows and, therefore, that bulls can be proved by means of lactation records figured according to exact ages only in herds of registered dairy cattle. This argument applies in connection with the 12-month records as much as in the case of lactation records. Regardless of the method, if records are to be figured to maturity the date of birth and the date of freshening should be reported accurately. This has been one of the greatest weaknesses in figuring records of immature animals to maturity. In many cases the cow has been considered two until she was three, three until she was four, etc.

It is generally true that a new method must be tried out thoroughly before anybody can say to a certainty that the work can be done successfully. Working on that basis it was thought best to try out the new method before recommending a change. For that reason a letter was sent to the men in charge of the dairy herd-improvement association work in the various States. In nearly every case the State leaders have reported that they are in favor of trying out the new plan. The State of Iowa was the first to send in enough lactation records to prove a bull by means of the lactation method. Within a month after the first record was received from Iowa enough records had been received from other States to prove 20 bulls by means of the lactation method. This response from the States would indicate that the possibility of shifting over from the 12-month method to the lactation method if it proves desirable to do so.

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WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 8 No. 4

June 1932

FEED RECORDS

The Dairy Herd-Improvement Association records are supposed to furnish definite information regarding the quantity of each kind of feed fed to each cow in every herd on test. Some of them do furnish this information, but a large percentage of them do not.

Practically all the records received by the Bureau of Dairy Industry contain some information regarding the feeds fed each cow but much of it is too indefinite or too inaccurate to be tabulated. Often the concentrates are reported as so many pounds of grain without any reference to the kind or kinds of grain. The term "grain mixture" is given frequently without any indication as to the concentrates that were used in making up the mixture. Sometimes all except one of the concentrates are named, and that one is simply called "grain mixture" or it isn't named at all. Occasionally concentrates are placed in one of the columns headed "succulent roughage" or in one of the dry roughage columns.

Sometimes timothy hay is given as a succulent roughage, silage as a concentrate, and a concentrate as a dry or succulent roughage. Of course, all these errors do not often occur on the same record; yet one tester, not long ago, placed clover hay, clover chaff, timothy hay, oats in the bundle, oat straw, and corn stover all under succulent roughage. Even in States bordering on Canada and east of the Rocky Mountains herds are occasionally reported as being on pasture all the way from 300 to as high as 410 days in one year. Of course, some of these are simply mistakes in copying, but the grouping of all the concentrates under the one heading "grain" or "grain mixture" cannot be classified as "a mistake in copying." Such records cannot be used in connection with feed studies of any kind.

The Bureau of Dairy Industry is preparing to install on July 1 of this year a tabulating machine having practically double the capacity of those now in use. That machine will make possible comprehensive studies of feeds by name and weight. The printed cards for this work are already on hand and the punching machines are now in operation. It is the intention to make feed studies of all the 1931-32 records so far as facilities will permit, but it will be possible to study only those records that are completely and accurately filled out. The work is already under way and going very nicely except that too large a percentage of the feed records have to be discarded.

IDENTIFICATION OF GRADE COWS

The identification of grade cows is an important problem in dairy herd-improvement association work. In proving a dairy bull it is necessary to compare the production records of his daughters with the production records of their dams. In order to do this it is necessary that the identification of each animal should be positive. Because it is usually difficult to identify animals in grade herds few bulls are being proved by dam and daughter comparisons in such herds. One-half of the bulls already proved were proved by using records of registered animals only. One-sixth were proved by using records of grades only, and the remainder were proved by using records of both grade and registered animals.

As the grade cows on test in dairy herd-improvement associations are more than twice as numerous as the registered cows, it would seem that a much larger percentage of the proved sires should be proved through the use of grade records. Doubtless the extensive use of identification marks, that would establish without question the identity of every grade cow, would result in the proving of a large number of bulls that are now going to the block before their true breeding value is known. In our Dairy Herd-Improvement Association Letter of August 1929, Volume 5, Number 8, a discussion was given of methods that may be used to make the identification of grade cows easy and accurate.

NUMBER OF BULL ASSOCIATIONS INCREASING

There has been a steady increase in the number of Cooperative Bull Associations from year to year since the first one was organized in 1908. On January 1, 1932 there were 402 associations, 43 more than on January 1, 1931 and 106 more than on the same date in 1930. There are now 8,024 members who cooperatively own 1,852 registered dairy bulls, which are used on more than 68,000 cows. This is a gain over last year of nearly 1,000 members and 10,000 cows. Twenty-six States have one or more associations. However, about 70 per cent of the associations are in the following five States: Louisiana, Missouri, Oklahoma, Texas, and Pennsylvania. Special campaigns were carried on in these States to organize bull associations and the results have been very satisfactory.

Some of the reasons for the increased number of associations are: (1) Some dairymen have found that it is more economical to own an interest in several association bulls than to own one bull outright. (2) That a better class of bulls are selected by the association than are usually selected by the average dairyman. In support of this statement the production records of 1,336 daughters of association bulls show that the daughters, on an average, produced 412 pounds of butterfat while their dams had an average production of 387 pounds. This is a very satisfactory increase considering the fact that the bulls were mated with fairly high-producing dams, and indicates that bulls of high quality are being selected by the associations. It also explains the growing popularity of these organizations.

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WASHINGTON, D.C.

Dairy Herd-Improvement Association Letter Vol. 8 No. 8

October 1932

SIRES PROVED BY LACTATION RECORDS

Early in February of this year the Bureau of Dairy Industry, in cooperation with the various States, began proving dairy bulls by means of lactation records of dams and daughters. Up to October 1st the number of dairy bulls proved by this method was 110, as shown in the following table.

Sires proved by lactation records

State	Number Sires Proved	Number Proved Sires Living	Number Proved Sires Dear
New York	29	8	21
California	25	13	12
Iowa	12	5	7
Virginia	9	4	5
Idaho	8	6	2
Michigan	8	5	3
Illinois	7	2	5
Minnesota	7	1	6
Massachusetts	2	0	2
Mississippi	1	1	0
Missouri	1	1	0
Nebraska	1	1	0
Total	110	47	63

Each bull was proved by comparing the milk and butterfat production records of 5 or more of his unselected daughters with the milk and butterfat production of their dams. Each production record used consisted of the cow's production during one lactation, not to exceed one year from the date when she freshened. For each dam and daughter comparison the records of immature animals were figured to maturity using exact ages as a basis of computation. Holding strictly to these rules reduced the number of sires proved, but made the records much more valuable for those that were proved.

In the table the States are arranged in order of the total number of bulls proved by the lactation method except that when the same number was proved in two or more States those States were arranged alphabetically. From the table we learn that New York State ranked first in the number of bulls proved by lactation records. California was second, Iowa third, and Virginia fourth. While New York leads the list at present in numbers proved, California is first in the number of living sires proved by means of lactation records.

More Bulls Proved While Alive

Apparently one of the greatest advantages of the lactation method of proving bulls lies in the fact that bulls can be proved at a younger age by this method than by the 12-months method. A bull may be proved by means of lactation records as soon as five or more of his daughters have completed their first lactation but, in many cases, it will be nearly a year later before some of these same daughters will have completed a 12-months record within a testing year. Because bulls can be proved at a younger age, more bulls will be proved while they are still alive.

The records show that this is true. Among the 110 bulls proved by the lactation method 42 per cent were alive at the time they were proved. Of the first 1,000 bulls proved by the 12-months method only 16 per cent were reported to be alive at the time they were proved.

The proving of bulls by lactation records is now nicely started. There seems to be no logical reason why, within a very short time, this method may not equal or exceed the 12-months method in the number of bulls proved yearly in our dairy herd-improvement associations.

Dairymen in need of proved bulls to head high-producing herds generally prefer lactation records to 12-months records as a measure of a bull's value. Letters from the States indicate a rapidly growing interest in lactation records and it is planned to keep the State field agents and others interested informed of the progress made, by frequent reports through the Dairy Herd-Improvement Association Letter.

THE VALUE OF RECORDS

More than 20,000 dairymen in the United States are keeping production and feed records of their dairy cows through dairy herd-improvement associations. Many of them are making full use of the records thus obtained to cull out low-producing, unprofitable cows and as a guide to feeding and breeding. However, the individual cow records sent to the Bureau of Dairy Industry for tabulation show evidence that some of the dairymen are not making full use of them.

In one case a dairyman allowed 6 unprofitable cows to remain in his herd for 3 years before disposing of them. A dairyman who does not keep records and has no way to detect unprofitable cows in his herd may have some excuse, but in a case where evidence is so conclusive there is none. Whether in dairy farming or in other lines of endeavor, the man that knows the most about his business has the best chance to succeed.

Among the thousands of records that have been examined by the Bureau of Dairy Industry were those of one dairyman who owned a herd of 18 cows that were on test for 12 months. These cows produced an average of 331 pounds of butterfat per cow per year, which is fairly good for an average, but the average production does not tell the whole story. The production per cow ranged from less than 200 to over 500 pounds and when the 9 lowest producing cows were compared with the 9 highest producers the value of making a study of the records was shown. The results of the two groups of 9 cows each are shown in the table below:

Group	Ave.Lbs. B'fat.	Ave.Feed Cost	Ave. Income Over Feed Cost	Total Income Over Feed Cost
1	147	$64	$44	$396
2	245	54	11	99

Group 1 returned 4 times as much income over cost of feed as Group 2. If the cows in Group 2 had been removed from the herd at the beginning of the year the labor and a part of the overhead would have been cut in half and 2,203 pounds of butterfat on which the dairyman received little or no profit would have been kept off the market. This is only one example of many similar ones to be found in the dairy herd-improvement association records. A little head work sometimes prevents long hours of useless effort.

PROVED SIRES TAKE THE GUESS WORK OUT OF BREEDING

More than 200 dairy cows in the United States have produced 1,000 pounds or more of butterfat each in one year. About 25,000 cows in dairy herd-improvement associations in 1931 averaged 306 pounds. Yet the average production of all dairy cows in the United States is only about 180 pounds of butterfat yearly. One hundred and eighty pounds is too low for profitable dairying. We cannot expect every dairy cow in every herd to produce 1,000 pounds, or even half of that in this day and age, but there is no reason why the average cannot be very materially increased within the next decade if the proper steps are taken. The dairymen in the dairy herd-improvement associations have demonstrated that it can be done. Proper care and feeding will do much, but material improvement must come through breeding.

Every cow in the next generation of cows will be 50 per cent of the blood of the sire, and upon the sire you choose today depends the kind of herd you will have tomorrow. The choice will probably make you or break you. If you choose a poor one it will take years to undo the damage. There is a way in which this error may be avoided. Choose a sire that has proved his ability to transmit an increased production to his daughters over their dams in a herd whose average production is equal to or excels your own. You may pay more than you would pay for an unproved bull, but he is worth it if an increased production in your herd results.

Keeping production and feed records of the dairy cows has taken the guess work out of feeding and culling. Proved bulls will greatly lessen the gamble in breeding.

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Dairy Herd-Improvement Association Letter. Vol. 9, No. 2.

February 1933

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SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1933

(As reported by dairy specialists)

The past year has been a severe test for dairy herd-improvement association work, yet the large number of dairymen still keeping records furnish a splendid demonstration of how much this method of herd improvement is valued.

On January 1, 1933, there were 881 associations with 15,447 members in 46 States, owning 358,501 cows. This is a decrease of about 12 per cent in the number of associations and about 16 per cent in the number of cows on test as compared with the previous year.

The decrease was largely in the Middle West, while five States in the East and South and one of the North Central States actually made slight gains.

The summary also shows that there are fewer herds per association, fewer cows per association, but more cows per herd.

At a time when business is transacted on a narrow margin of profit, records become a most valuable guide, and the man that knows the most about his business is the one most likely to succeed. Every tabulation made by the Bureau of Dairy Industry shows that the high-producing cows are more profitable than the low-producing cows. As individual cow records are necessary to determine which are the profitable and which are the unprofitable cows, it would seem to be false economy to discontinue testing under present conditions.

(Up to and including 1923, data were collected on July 1. Beginning with 1924 reports are made by calendar years. The last nine columns give data for January 1.

State	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32
Mich1/	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	94	90	88	69
Me1/	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0	5	5	5
N.Y.1/	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	54	51	69	79
Vt.	2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23	23	28	29
Iowa	2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86	101	101	100	82
Cal.	1	3	2	4	4	5	7	9	15	16	14	18	21	21	27	20	30	35	32	32	33	31	62
Wis.	9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166	154	142	131	96
Neb.	1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23	28	29	26
Colo.		1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	14	15	15	15
Pa.		1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43	49	65	76	88	88	85
Ohio		1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29	39	38	37	36
Wash.		1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12	15	12	15
Md.			1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8	9	13	11
Ill.			4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51	59	62	57
Minn.			3	7	10	9	11	22	26	23	21	19	23	37	55	88	84	85	105	117	120	96	69
N. H.			1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	4	7	7	8	9
Ore.			1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14	14	16	16
Utah			1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5	8	6	7
Mass.			2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11	11	13	13
Va.			2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	20	20	20	20	25
Kan.					1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	20	22	25	18
Ind.					2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	41	51	37	32
Ky.					1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8	12	12	8
Mo.						2	1	2	5	4	5	6	7	11	12	13	19	21	25	34	36	34	28
N. J.						2	3	4	8	9	9	12	8	6	6	6	9	11	17	18	16	15	17
W. Va.						1	1	3	1	1	1	3	5	5	6	3	3	3	4	6	7	9	5
Conn.						1	3	6	3	0	0	1	0	2	1	1	2	4	5	3	4	4	2
N. C.						2	0	0	0	0	0	2	2	0	0	2	5	5	5	8	7	7	8
La.						1	0	0	0	0	0	1	0	0	0	0	0	1	2	2	2	3	2
S. Dak.						1	1	3	3	0	0	0	0	0	4	11	9	10	8	14	12	12	7
Nev.							1	0	1	0	0	0	1	1	4	3	1	3	0	1	0	0	0
Ariz.								2	2	1	0	0	2	1	1	2	1	1	2	3	4	3	2
R. I.								2	2	0	0	4	4	4	3	0	0	0	0	1	1	1	2
Del.								2	3	2	2	1	0	0	0	0	0	0	0	1	1	1	1
Idaho								2	1	1	4	5	6	4	8	8	8	9	12	13	13	12	10
Miss.								1	0	0	0	0	3	2	1	1	2	0	1	1	2	3	3
Mont.								1	2	0	0	0	0	0	2	4	3	7	7	8	9	9	8
Tenn.								1	8	4	6	3	3	4	2	2	2	2	3	7	10	10	8
N. Mex.									1	0	0	0	1	1	1	0	1	1	2	2	1	1	1
Wyo.									1	0	1	0	0	0	0	1	0	0	0	1	1	1	1
Ala.										2	1	3	1	1	0	0	0	1	3	4	7	6	4
Ga.										1	0	0	0	0	0	0	0	1	1	2	1	0	1
N. Dak.										1	1	1	2	6	8	5	3	6	4	7	9	9	5
Okla.											1	1	2	1	3	5	5	5	12	22	25	21	20
S. C.											1	1	1	0	0	0	0	0	0	1	3	2	0
Texas											3	0	0	0	0	0	0	1	3	6	7	5	5
Ark.												1	2	2	2	0	0	0	2	*	1	3	*
Fla.																				1	2	0	0
Total	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	1090	1143	1112	1005

1/ Michigan--1 association in 1906--4 in 1907 --2 in 1908. Maine--3 in 1908. N.Y.--1 in 1908.

* No report.

SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1933.

State	Number of associations	Number of herds	Number of cows	Average per association Herds	Average per association Cows	Total dairy cows 1/	Percentage of cows in D.H.I.A.'S.
Alabama	3	34	1,250	11	417	413,000	.3
Arizona	2	22	756	11	378	45,000	1.7
Arkansas	1	10	400	10	400	454,000	.1
California	60	1,073	59,151	18	986	625,000	9.5
Colorado	15	149	3,810	10	254	269,000	1.4
Connecticut	2	46	1,331	23	666	115,000	1.2
Delaware	1	18	434	18	434	36,000	1.2
Georgia	1	15	488	15	488	356,000	.1
Idaho	5	91	1,413	18	283	198,000	.7
Illinois	53	1,007	17,928	19	338	1,111,000	1.6
Indiana	30	564	16,809	19	560	774,000	2.2
Iowa	60	1,143	19,805	19	330	1,503,000	1.3
Kansas	17	258	5,923	15	348	868,000	.7
Kentucky	6	99	2,137	16	356	544,000	.4
Louisiana	6	102	3,321	17	554	270,000	1.2
Maine	4	78	1,042	19	260	148,000	.7
Maryland	9	200	4,151	22	461	188,000	2.2
Massachusetts	14	282	6,594	20	471	132,000	5.0
Michigan	58	945	13,731	16	237	867,000	1.6
Mississippi	2	30	1,174	15	587	526,000	.2
Minnesota	45	674	12,313	15	274	1,742,000	.7
Missouri	29	296	6,574	10	227	1,040,000	.6
Montana	6	42	1,367	7	228	195,000	.7
Nebraska	20	215	3,866	11	193	714,000	.5
New Hampshire	9	194	4,236	22	471	79,000	5.4
New Jersey	16	317	8,570	20	536	122,000	7.0
New Mexico	1	3	300	3	300	71,000	.4
New York	74	1,360	32,910	18	445	1,438,000	2.3
North Carolina	9	89	3,020	10	336	328,000	.9
North Dakota	7	45	1,062	6	152	654,000	.2
Ohio	31	704	10,600	23	342	966,000	1.1
Oklahoma	15	136	4,103	9	274	766,000	.5
Oregon	14	291	6,262	21	447	255,000	2.5
Pennsylvania	86	1,591	28,775	18	335	904,000	3.2
Rhode Island	2	26	1,343	13	672	21,000	6.4
South Dakota	4	66	1,440	16	360	619,000	.2
South Carolina	1	7	393	7	393	154,000	.3
Tennessee	8	123	2,304	15	288	527,000	.4
Texas	3	73	1,799	24	600	1,391,000	.1
Utah	1	38	632	38	632	112,000	.6
Vermont	26	469	11,062	18	425	294,000	3.8
Virginia	28	383	13,013	14	465	406,000	3.2
Washington	13	409	7,186	31	553	312,000	2.3
West Virginia	5,	71	1,066	14	213	222,000	.5
Wisconsin	78	1,643	32,444	21	416	2,175,000	1.5
Wyoming	1	16	213	16	213	73,000	.3
Total	881	15,447	358,501			25,022,000 *	
Average				17.5	407		1.4

1/ Estimates of the Bureau of Agricultural Economics

* 46 States.

(SUMMARY OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS- Continued)

	Jan.1,1932	Jan.1,1933	Gain or Loss
Number of associations	1,005	881	- 124
Number of herds	20,351	15,447	- 4,904
Number of cows	427,044	358,501	- 68,543
Average herds per association	20.2	17.5	- 2.7
Average cows per association	425	407	- 18
Average cows per herd	21	23	+ 2
Number of testing circles	21	18	- 3
Number of cows in testing circles	3,944	3,947	+ 3

SUMMARY OF TESTING CIRCLES AS OF JANUARY 1, 1933

State	Number of circles	Number of herds	Number of cows	Average per circle	
				Herds	Cows
Arizona	1	12	240	12	240
Alabama	1	7	250	7	250
Connecticut	1	11	300	11	300
Idaho	3	20	164	7	55
Mississippi	1	12	232	12	232
Pennsylvania	3	131	1,721	44	574
Maryland	3	33	342	11	114
Wisconsin 1/	3	34	448	11	149
Wyoming	1	3	175	3	175
Vermont	1	2	75	2	75
Total	18	265	3,947		
Average				15	219

1/ Junior Associations.

RANK OF THE TEN HIGH STATES IN DAIRY HERD-IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS

January 1, 1932 - January 1, 1933

Largest number of associations		Largest number of association members	
1932	1933	1932	1933
1. Wisconsin	1. Pennsylvania	1. Wisconsin	1. Wisconsin
2. Pennsylvania	2. Wisconsin	2. Pennsylvania	2. Pennsylvania
3. Iowa	3. New York	3. Iowa	3. New York
4. New York	4. Iowa) tie	4. New York	4. Iowa
5. Minnesota) tie	5. California)	5. California	5. California
6. Michigan)	6. Michigan	6. Minnesota	6. Illinois
7. California	7. Illinois	7. Illinois	7. Michigan
8. Illinois	8. Minnesota	8. Michigan	8. Ohio
9. Ohio	9. Ohio	9. Ohio	9. Minnesota
10. Indiana	10. Indiana	10. Indiana	10. Indiana

Largest number of cows in associations		Highest percentage of all cows on test	
1932	1933	1932	1933
1. California	1. California	1. California	1. California
2. Wisconsin	2. New York	2. Rhode Island	2. New Jersey
3. New York	3. Wisconsin	3. New Jersey	3. Rhode Island
4. Pennsylvania	4. Pennsylvania	4. New Hampshire	4. New Hampshire
5. Iowa	5. Iowa	5. Massachusetts	5. Massachusetts
6. Illinois	6. Illinois	6. Vermont	6. Vermont
7. Minnesota	7. Indiana	7. Pennsylvania	7. Pennsylvania) tie
8. Michigan	8. Michigan	8. Oregon) tie	8. Virginia)
9. Vermont	9. Virginia	9. Utah)	9. Oregon
10. Virginia	10. Minnesota	10. Virginia	10. New York) tie Washington)

OFFICIALS IN CHARGE OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES

ALABAMA	F. W. Burns, Extension Service, College of Agriculture, Auburn.
ARIZONA	Clyde F. Rowe, Extension Service, College of Agriculture, Tucson.
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Cull by Test

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Dairy Herd-Improvement Association Letter   Vol. 9, No. 7

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TABULATIONS OF THE 1931-32 DAIRY HERD-IMPROVEMENT ASSOCIATION RECORDS FOR THE UNITED STATES

The Bureau of Dairy Industry has just finished tabulating the dairy-herd-improvement association records for 1931-32. On January 1, 1933 there were reported in active operation 881 associations with 358,501 cows on test in 44 States. The Bureau received the records of 791 of these associations, which were tabulated by herds, by associations, and by States. Copies of the summaries were sent to the States where the records originated.

The records of all cows on test for a full 12 months in all the States were tabulated in various ways. This group of 186,683 cows produced an average of 7,858 pounds of milk containing 310 pounds of butterfat a year, which is about 83 percent more than the average production of all dairy cows in the United States.

Although this small group represents less than 1 percent of the dairy cows in the country they produced a total of nearly 1 1/2 billion pounds of milk containing about 58 million pounds of butterfat. They furnished a home market for over 11 million dollars worth of feed and returned to their owners for labor and overhead more than 16 million dollars.

Tabulations of the records were made on the following subjects: (1) Relation of milk production to other factors. (2) Relation of butterfat production to other factors. (3) Relation of cost of grain to other factors. (4) Relation of time of freshening to other factors. (5) Butterfat production of registered cows by age. (6) Butterfat production of grade cows by age.

Milk Production

The 186,683 cows were grouped according to milk production, centering the groups on approximately 1,000 pounds. The production per cow ranged from zero to 29,672 pounds. There were 30 cows that produced nothing during the 12 months and about 2,200 more that produced less than 3,000 pounds each. On an average it required a production of about 4,000 pounds to return $2 for each $1 spent for feed.

On an average, a cow producing 2,000 pounds of milk returned $11 over feed cost. At 4,000 pounds the income over feed cost was $44. A production of 8,000 pounds returned $89 over feed cost and at 10,000 pounds the return was $105. One cow producing 10,000 pounds returned over feed cost as much as 9 1/2 cows producing 2,000 pounds each.

Butterfat Production

The records were sorted and placed in groups according to butterfat production, centering the groups on about 50 pounds. The production per cow ranged from zero to 1,044 pounds. There were about 500 cows that failed to pay for their feed and about 1,600 more that paid for their feed but returned little or nothing for labor and overhead. On the average it required a production of about 225 pounds of butterfat to meet all costs of production - that is, to reach the point where $2 was returned for each $1 spent for feed.

As butterfat production per cow increased from group to group there was a regular increase in cost of feed and a rapid increase in income over feed cost, and a decrease in feed cost per pound of butterfat. The feed cost per pound of butterfat from cows producing 100 pounds per year was 42 cents. For cows producing 200 pounds the feed cost was 25 cents, for 300 pounds 20 cents, and for 400 pounds 16 cents.

Cost of Grain

The records were sorted on the "cost of grain," centering the groups on about $5.00. The cost of grain per cow ranged from zero to $158. The average was $26 per cow. There were 700 cows that received no grain during the 12 months and nearly 7,000 others that received an average of only $5.00 worth. However, there seems to be a direct relation between the amount of grain fed and other factors. As the grain increased from group to group there was a general increase in production and in income over feed cost. It appears that some of the groups of cows were underfed and other groups overfed. A close study of the requirements of the individual cow may result in a great saving of feed and labor.

Time of Freshening

The time of year that cows freshen sometimes makes a vast difference in production and in income over cost of feed. The tabulation of about 150,000 cows for the year 1932 shows that the cows freshening during the fall and winter months averaged 450 pounds more milk and 15 pounds more butterfat than those freshening during the spring and summer months. However, the market price for butterfat for the different seasons of the year is a factor that must be considered. In some sections of the country the price of butterfat is higher during the spring and summer, and offsets any advantage the higher production of fall and winter freshening may bring. Other factors being equal the tabulations show that there is much to be gained by having the cows freshen during the fall and winter months.

Registered Cows versus Grade Cows

In the 1932 tabulations there were 59,606 registered cows on test for 12 months on which age was reported. The largest numbers of cows are found in the 3 and 4 year groups. The peak of production was reached at 6 years of age. The average production of all registered cows was 8,491 pounds of milk and 330 pounds of butterfat.

There were 89,000 grade cows on test for 12 months on which age was reported. About 60 percent of the grade cows were found in the groups ranging from 3 to 6 years of age. The peak of production was reached at 6 years of age. The grade cows of all ages had an average production of 7,667 pounds of milk and 305 pounds of butterfat. The registered cows, therefore, exceeded the production of the grades by 824 pounds of milk and 25 pounds of butterfat per cow.

The tabulations as a whole indicate that (1) good cows well fed and cared for will make a profit on the feed they consume even under present conditions, (2) that a study of feed and the requirements of the individual cow is necessary to economical production, (3) that cows freshening during the fall and winter months have a tendency to higher production, (4) that registered cows are superior to grades, and (5) that low-producing cows are unprofitable and should be eliminated from the herd.

KENDRICK TAKES OVER PROVED SIRE WORK

J. F. Kendrick, who has been with the U. S. Department of Agriculture for several years and recently in charge of the statistical investigational work of the Division of Dairy Herd-Improvement Investigations, has been placed in charge of the Proved Sire Work, succeeding W. E. Wintermeyer recently detailed to the Extension Staff of the Bureau of Dairy Industry and Office of Cooperative Extension Work.

Mr. Kendrick has had wide experience in both practical and scientific agriculture and is well versed in the field of dairy industry. He was raised on an Ohio farm, attended Ohio State University and was county agricultural agent in Western Ohio for several years. He holds Bachelor and Master degrees in Agricultural Economics and since coming with the Department has continued his study of agricultural economics as related to dairy farming.

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October 1933

PROGRESS IN PROVED SIRE WORK

Of the 3,419 dairy sires that have been proved by the Bureau of Dairy Industry to date approximately one-third had daughters whose production excelled that of their dams, one-third had daughters whose production equalled that of their dams, while the remaining third had daughters that failed to equal the production of their dams. This would suggest that dairymen, particularly those with high-producing herds, have approximately one chance in three of finding a sire that will improve their herds. The dairyman with a low-producing herd naturally is more likely to find a sire that will improve his herd than is the dairyman with a relatively high-producing herd.

In addition to the 3,419 dairy sires already proved, 17,204 had been partly proved up to October 1, 1933. Only 8 or 10 dairy sires had been proved by July 1925. From that small beginning the work grew until in 1929, 3,287 dam and daughter comparisons were made and 279 sires were proved. Now more than 17,000 dam and daughter comparisons are made each year and around 900 sires are proved annually. During the first 9 months of this year 11,562 dam and daughter comparisons were made and 590 sires were proved.

Of the last 832 sires proved, only 264 or 31.7 percent were alive when proved. Proved-sire work is of greatest value to dairymen when the sires are proved while still alive and young.

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REGISTERED VERSUS GRADE DAIRY COWS

On the Channel Islands there is no mixing of breeds of dairy cattle, and consequently there are no grades. On the Island of Guernsey the cows are all Guernseys. On the Island of Jersey they are all Jerseys. There are some cows on the Islands, however, that are not registered in the Island herd books. When an unregistered cow meets certain qualifications of type and production she may be registered in the foundation herd book, which will make her offspring eligible for registration.

In the United States such procedure has never been followed. To enter an animal in the herd books here the pedigree must trace back to the register of the country from which the animal was imported.

The United States has imported dairy cattle from many countries, with the result that there are a number of distinct breeds in this country. There are also the so-called native cattle, representing no distinctive breed. As a result of so many dairy breeds and so many breeders with no special foresight or breeding program in mind, many herds in the United States represent a mixture of almost every possible breed. On a tour through most any dairy community cows of almost every color and combination of colors will be seen, as well as cows of all sizes, breeds, and blending of breeds, registered cows, grades, and scrubs. No wonder there is a great variation in type and ability to produce milk and butterfat.

In examining about 200,000 yearly records of cows on test in dairy herd-improvement associations in 1932 the Bureau of Dairy Industry found that the production ranged from a few pounds to more than 1,000 pounds of butterfat per cow. Several hundred cows, during the last few years, have produced 1,000 pounds or more of butterfat each in 12 months, yet the estimated average butterfat production of all dairy cows in the United States is only about 170 pounds. The tabulated records of these 200,000 association cows showed an average butterfat production of 310 pounds per cow. These records included all dairy breeds, both registered and grade. Separating the records of the registered cows from those of the grade cows, it was found that the 60,000 registered cows had averaged 330 pounds of butterfat per cow and 89,000 grade cows had averaged 305 pounds. The registered cows excelled the grades by 824 pounds of milk containing 25 pounds of butterfat per cow.

Five years ago (1928) the registered cows on test in dairy herd-improvement associations produced an average of 316 pounds of butterfat a year and the grades averaged 290 pounds. In the last five years the registered cows in these associations have gained 14 pounds and the grade cows have gained 15 pounds per cow. It would appear that the grades improve in quality only about as fast as the registered cows improve.

A more careful selection of herd sires and a more rigid culling of low-producing cows in the grade herds would in a few years place the grades equal in production to the registered cows.

The grade cows owe all of their desirable qualities to the "blood" of registered animals and must continue to depend on them for further improvement. It is needless to say that it will require a certain amount of effort and planning on the part of the breeders of registered cattle to keep in the lead.

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Dairy Herd-Improvement Association Letter ____ Vol. 9 No. 9
November 1933

NEW AGE-CONVERSION FACTORS

The Division of Dairy Herd-Improvement Investigations has long been of the opinion that conversion factors based on Dairy Herd-Improvement Association records would be more applicable to the cows on test than conversion factors based on any other records. The division has used the 70, 80, and 90 conversion factors which were compiled many years ago and which were based on very meager data. For several years data have been collected from Dairy Herd-Improvement Association records to be used in a study of conversion factors. Sufficient data were finally obtained and a new set of conversion factors has been calculated. The data were so handled statistically that the influence of culling was reduced to a minimum.

Briefly, the plan followed was to use the percentage increase or decrease in production from year to year, or graphically, the degree of slope of the production trend line. This trend line was derived from a great volume of data consisting of two consecutive lactation periods of the same cows. For example, the butterfat production record was obtained for the cow that freshened at the age of two and of the same cow when she freshened at the age of three. This was repeated for enough cows at these ages to furnish the production slope from two to three years of age. In order to determine the number of records necessary to give the true slope of the line from two to three years the work was continued until the slope became constant. In like manner the slope was determined for each of the other ages, that is, from three to four, from four to five, from five to six, and from six to seven, and for the intervening ages by months. These yearly slopes were then combined by statistical methods into a smooth line with all data having its proper influence in the resulting curve. Four thousand and fifty-eight individual records were used in the study, which volume is of sufficient size to insure reliable results.

The factors are not continued beyond the age of seven though the records showed that the line began to curve downward at about that age. The reason for discontinuing the factors at seven years is that there were not enough records to furnish a constant curve beyond that point.

The following table shows the conversion factors for the different ages:

TABLE 1. - AGE-CONVERSION FACTORS
(Based on 4,058 D.H.I.A. records)

AGE OF FRESHENING Yr. Mo.	FACTOR	AGE OF FRESHENING Yr. Mo.	FACTOR	AGE OF FRESHENING Yr. Mo.	FACTOR	AGE OF FRESHENING Yr. Mo.	FACTOR
2 - 0	1.294	3 - 0	1.149	4 - 0	1.064	5 - 0	1.020
2 - 1	1.279	3 - 1	1.142	4 - 1	1.059	5 - 1	1.018
2 - 2	1.264	3 - 2	1.135	4 - 2	1.054	5 - 2	1.016
2 - 3	1.250	3 - 3	1.127	4 - 3	1.049	5 - 3	1.013
2 - 4	1.236	3 - 4	1.119	4 - 4	1.045	5 - 4	1.011
2 - 5	1.222	3 - 5	1.111	4 - 5	1.041	5 - 5	1.009
2 - 6	1.211	3 - 6	1.103	4 - 6	1.036	5 - 6	1.007
2 - 7	1.199	3 - 7	1.095	4 - 7	1.033	5 - 7	1.006
2 - 8	1.188	3 - 8	1.089	4 - 8	1.031	5 - 8	1.005
2 - 9	1.176	3 - 9	1.082	4 - 9	1.028	5 - 9	1.004
2 - 10	1.167	3 - 10	1.076	4 - 10	1.026	5 - 10	1.003
2 - 11	1.159	3 - 11	1.071	4 - 11	1.024	5 - 11	1.002
						6 - 0	1.000

These factors have been tested out on records of immature cows and checked with records of the same cows at maturity and have been found to have far greater accuracy than the old 70, 80, and 90 conversion factors.

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December 1933

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RECORDS FOR YEAR 1933

Four States have already sent in all their dairy herd-improvement association records for the testing year 1933. On the other hand there are many States that are far behind in sending in records. If all individual cow records could be sent in to the Division of Dairy Herd Improvement Investigations between now and the end of January it would be possible to prepare the State tabulations at a much earlier date than in former years. Perhaps it will be possible to get all the 1933 records in this year before the first of February. Many States will do this. Why not all?

FEEDS AND FEED COSTS FOR DAIRY COWS AT DIFFERENT LEVELS OF PRODUCTION

The following table shows some interesting facts regarding the feeding of cows on test in dairy herd-improvement associations. At low levels of butterfat production, that is, at levels of 200 pounds and below, the quantity and the cost of feed per cow were both comparatively low. These cows were fed only a limited quantity of alfalfa hay and silage and the quantity of concentrates fed was about in proportion to production.

As production advanced from group to group through the medium and high-producing groups, silage feeding was increased, the cows were fed more liberally on alfalfa and other legumes and the quantity of concentrates, including high, medium, and low protein, was increased about in proportion to production.

Allowing a constant price of 25 cents a pound for butterfat we find that the cows that produced 100 pounds of butterfat a year brought in an income over cost of feed of $4 while the cows that produced 500 pounds of butterfat a year averaged $60 income over cost of feed. Expressing this in another way, as butterfat per cow increased from 100 pounds in the first group to 500 pounds in the fifth group the income over cost of feed advanced from $4 to $60 a year per cow; or as butterfat was increased 5 times the income over cost of feed was increased 15 times. Though the high-producing cows ate much more in pounds of feed and in dollars worth of feed, they produced so much more that they always won out in income over cost of feed.

RELATION OF BUTTERFAT PRODUCTION TO FEED CONSUMED

1932 Records (sorted on butterfat)
Compiled March 1933.

TABLE I.

Ave. b'fat. prod. lbs.	Yearly records number	Ave. milk prod. lbs.	Ave. cost of roughage dollars	Ave. cost of grain dollars	Ave. income over feed cost dollars	Silage lbs.	Alfalfa lbs.	Clover lbs.	Other legumes lbs.
100	4	2,324	17	4	4	1,400	400	-	-
150	59	3,702	21	11	6	3,100	700	-	100
200	224	5,092	23	13	14	3,600	900	100	100
250	525	6,458	26	16	21	4,400	1,000	100	100
300	682	7,676	27	19	29	4,600	1,200	100	200
350	632	8,823	28	21	39	4,800	1,400	100	300
400	399	10,051	29	25	46	5,100	1,700	100	200
450	209	11,199	30	27	56	5,300	1,800	100	300
500	69	12,869	33	32	60	5,500	1,700	100	300

TABLE I (continued)

Ave. b'fat. prod. lbs.	Mixed hay lbs.	Non-legume hay lbs.	Concentrates high protein lbs.	Concentrates medium protein lbs.	Concentrates low protein lbs.	Months on pasture
100	700	300	58	116	440	5
150	300	700	207	295	890	5
200	400	600	191	266	1,136	5
250	400	700	197	317	1,520	6
300	400	400	251	342	1,762	6
350	300	300	283	341	2,070	6
400	300	200	343	424	2,324	6
450	300	200	425	432	2,591	6
500	300	100	482	554	2,970	6

PROVED SIRE CIRCULAR

The Bureau of Dairy Industry recently issued Mimeographed Circular BDIM 599, "Information on Proving Sires in Dairy Herd-Improvement Associations." The material included in the circular should encourage and assist cow testers in reporting dam and daughter records for proving sires. Copies may be obtained to supply all testers, county agents, and dairy specialists.

CONTROLLING DAIRY PRODUCTION THROUGH FEEDING

The Bureau of Dairy Industry has conducted experimental feeding work in order to determine the relative production and profits when cows are fed, first, a full-grain ration; second, a limited-grain ration; and third, a ration consisting of roughage alone. The full-grain ration consisted of 1 pound of grain to each 3 pounds of milk produced. The limited-grain ration consisted of 1 pound of grain to each 6 pounds of milk produced. It was found in these experiments that, where high-protein roughages were available, it was more profitable to feed a limited-grain ration or a ration consisting of roughage alone than to feed a full-grain ration.

According to the November report on Milk Production Trends prepared in the Bureau of Agricultural Economics the total number of cows is still increasing. On the other hand the value per 100 pounds of the concentrates fed to dairy cows has advanced 47 percent during the past year and recently the quantity of concentrates fed per cow has averaged 14 percent less than in the same months of last year. This reduction in the quantity of grain fed has reduced milk production per cow about one percent.

Though the milk per cow has decreased, the increase in number of cows milked has brought a slight increase in total milk produced.

The report further states that: "Since last spring there has been a sharp increase in the number of cows marketed and calf slaughter has also been heavy for several months in succession."

The feeding of more and better roughages and of less grain per cow, the closer culling of low-producers from dairy herds, and the raising of fewer heifer calves if continued should eventually reduce the present surplus of dairy products to any desirable level.

These practices on the part of dairymen should be encouraged. One of the best ways to encourage them is to extend the work of the dairy herd-improvement associations in order that all these changes may be made intelligently and on the basis of authentic production records.

COMPLETE RECORDS FOR PROVING SIRES

As some of the National dairy herd associations have delayed the publishing of herd books, we are unable to use that source of information to fill in when dam and daughter records are incomplete. In connection with dam and daughter records, whether the cows are registered animals or grades, the records must be filled out in full on the form or it will be necessary to discard them.

Naturally about half the milk cows of the United States produce less than the average. The dairyman who owns such cows, if he cannot obtain more than 22 cents a pound for butterfat, must build up his herd much above the average or he must be content to sell the feed to his cows at a low price or to work for little or nothing.

Yet over large areas, during the past year, butterfat has sold at prices below those given in this table. It is interesting to note the feed cost per pound of butterfat. For the first group the feed cost was $3 per pound of butterfat, for the second group it was 47 cents, and for the third group 27 cents. Even in the fourth and fifth groups, with a butterfat production of 150 and 200 pounds respectively the feed cost per pound of butterfat was so high that there was little income left to meet labor costs and overhead expenses.

The last column in this table shows the returns per dollar spent for feed. The first group returned only 6 cents, the second group returned 46 cents, and the third group returned 79 cents per dollar spent for feed. Not until the average butterfat production was 400 pounds per cow, did the returns per dollar spent for feed approach $2. Many dairymen consider that the herd is not profitable unless it returns $2 per dollar spent for feed.

That may be too high a standard to set for present conditions, but any dairyman who really desires to do so can soon build his herd up to an average butterfat production of 300 pounds per cow. The average for the cows on test in dairy herd-improvement associations is now 310 pounds. What has been done by the many thousands of members in these associations is within the reach of anyone who is willing to apply the approved principles of feeding, selection, and breeding in building a high-producing dairy herd.

Dairy herd-improvement association records show that it is possible to build up a 400-pound herd. Such a herd will return cost of production even at the low price of 22 cents a pound for butterfat. Dairy herd-improvement association records indicate that it is not difficult to build up a 300-pound herd. Such a herd even at 22 cents a pound for butterfat will return enough to tide over for a time at least. On the other hand, there does not seem to be much hope for the commercial dairyman who owns an average herd and who must sell butterfat at 22 cents a pound or less. His only chance for financial success seems to be in building up a better herd of cows. If he will become a member of a dairy herd-improvement association and study the individual records of his cows he may in a very short time become master of the situation and finally place his herd on a profitable basis.

A tabulation of the 1932 yearly records of 14,876 cows
whose product sold at from 15 to 24 cents a pound of butterfat.

Group	Cows in each group	B'fat per cow	Price of b'fat per lb.	Cost of roughage per cow	Cost of grain per cow	Total feed cost per cow	Income over feed cost per cow	Feed cost per lb. b'fat	Feed cost per 100 pounds of milk	Returns per $1 spent for feed
	Number	Pounds	Cents	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
1	6	11	21	26	7	33	-31	3.00	10.28	0.06
2	29	50	22	22	4	26	-14	.47	1.82	.46
3	160	100	22	22	7	29	- 6	.27	1.07	.79
4	677	150	22	21	8	29	5	.19	.75	1.17
5	1831	200	22	23	10	33	12	.16	.64	1.[illegible]
6	3056	250	22	24	12	36	20	.14	.57	1.56
7	3609	300	22	25	15	40	27	.13	.54	1.68
8	2742	350	22	25	18	43	35	.12	.50	1.31
9	1628	400	22	25	20	45	44	.11	.47	1.93
10	738	450	22	25	22	47	53	.11	.44	2.13
11	270	500	22	26	24	50	60	.10	.43	2.20
12	104	550	22	26	27	53	68	.10	.43	2.23
13	26	600	22	28	33	61	71	.10	.44	2.16

PROVED SIRE REPORT

In order that the progress and status of the proved-sire work may be known, a report of the number of sires proved by the lactation method during the year 1933 is given in the table below. Four States, Idaho, New Jersey, New Mexico, and New York reached the goal of proving an average of one or more sires by the lactation method for each association in operation in their States.

STATE	NUMBER OF SIRES PROVED			
	Up to 1933	During 1933		
		Total	Increased b'fat.prod	Decreased b'fat prod.
California	26	15	11	4
Idaho	10	8	7	1
Illinois	7	25	13	12
Iowa	12	35	28	7
Kentucky		1	1	
Massachusetts	2			
Michigan	8			
Minnesota	7	8	5	3
Mississippi	1			
Missouri	1			
Nebraska	1	9	6	3
New Hampshire		4	3	1
New Jersey		34	27	7
New Mexico		2	2	
New York	69	109	72	37
North Carolina	2			
Oklahoma		3	3	
Pennsylvania		17	9	8
Virginia	10	13	11	2
Washington	2	3	2	1
Wisconsin		4	4	
Total	158	290	204	86

A similar report of the number of sires proved by the lactation method will be given each month by States. Also from time to time records of outstanding sires will be cited. This information will enable the States to judge the progress of their proved sire work in comparison with other States.

* * * * * * * * * *

"AT LEAST ONE SIRE PROVED FOR EACH D. H. I. A. IN 1934"

PRODUCTION PER COW

In recent years there has been a yearly decline in the average production per cow for the total dairy cow population of this country. Within the dairy herd-improvement associations there has been for many years an increased production per cow. This difference in production trends has been very pronounced since the beginning of the present depression.

If present conditions tend to decrease the average production of the total dairy cow population why do they not have the same effect on the average production of the cows on test in dairy herd-improvement associations? Some time ago a study was made to determine the cause or causes of the continued increase in average production of the cows on test.

It was found that there were three causes. First, as the number of associations decreased, the poorest associations dropped out; second, the poorest herds within the association dropped out, and third, there was an increased production per cow in the herds that remained on test. The improvement in these herds appears to have been brought about through closer culling, better feeding, and the use of better bulls.

J. E. DORMAN RETIRES

J. E. Dorman, who has been in charge of the summarization of records in the Division of Dairy Herd-Improvement Investigations since 1929, retired from the Bureau of Dairy Industry December 31, 1933, after more than 31 years of service with the United States Government.

Mr. Dorman began his Government service in 1900, in the Post Office Department. In 1906 he joined the Department of Agriculture as a member of the Dairy Division, which later became the present Bureau of Dairy Industry. In 1911 he was given the job of selecting a site for an experimental dairy farm, selecting the land which has since been developed into the Beltsville, Md., station. From 1913 to 1929 he was in charge of the Bureau's western office at Salt Lake City, Utah.

Mr. Dorman was born in Manhattan, Kansas, September 23, 1868. In retirement he plans to live at Hollywood, Florida.

Cull by Test
DAIRY HERD IMPROVEMENT ASSOCIATIONS
Keep the Best

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 10 No. 2

February 1934

JUN 29 193

DAIRY HERD-IMPROVEMENT ASSOCIATIONS
IN THE UNITED STATES
ACTIVE JANUARY 1, 1934

(as reported by State dairy extension specialists)

Seven hundred and ninety-three dairy herd-improvement associations were in operation in the United States January 1, 1934, with 325,837 cows on test. This was a decrease of 88, or 10 percent, in the number of associations and a decrease of 32,664, or 10 percent, in the number of cows on test as compared to the number on January 1, 1933, when there were 881 associations, with 358,501 cows on test. Stringent financial circumstances among the dairy farmers can be ascribed as the chief cause for the decrease in number of associations. Dairy specialists from practically every section of the country report an increased interest in herd improvement work, however.

The decrease in number of associations occurred largely in the West and South. Five States (Maryland, New Jersey, Rhode Island, Vermont and West Virginia) gained in number of associations.

Nine States (Arizona, Connecticut, Kentucky, New Hampshire, New Jersey, Oklahoma, Rhode Island, Vermont, and Wyoming) gained in number of herds on test.

Nine States (Arizona, Connecticut, Kentucky, New Hampshire, New Jersey, Oklahoma, Rhode Island, Vermont and Wyoming) gained in total number of cows on test.

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1934

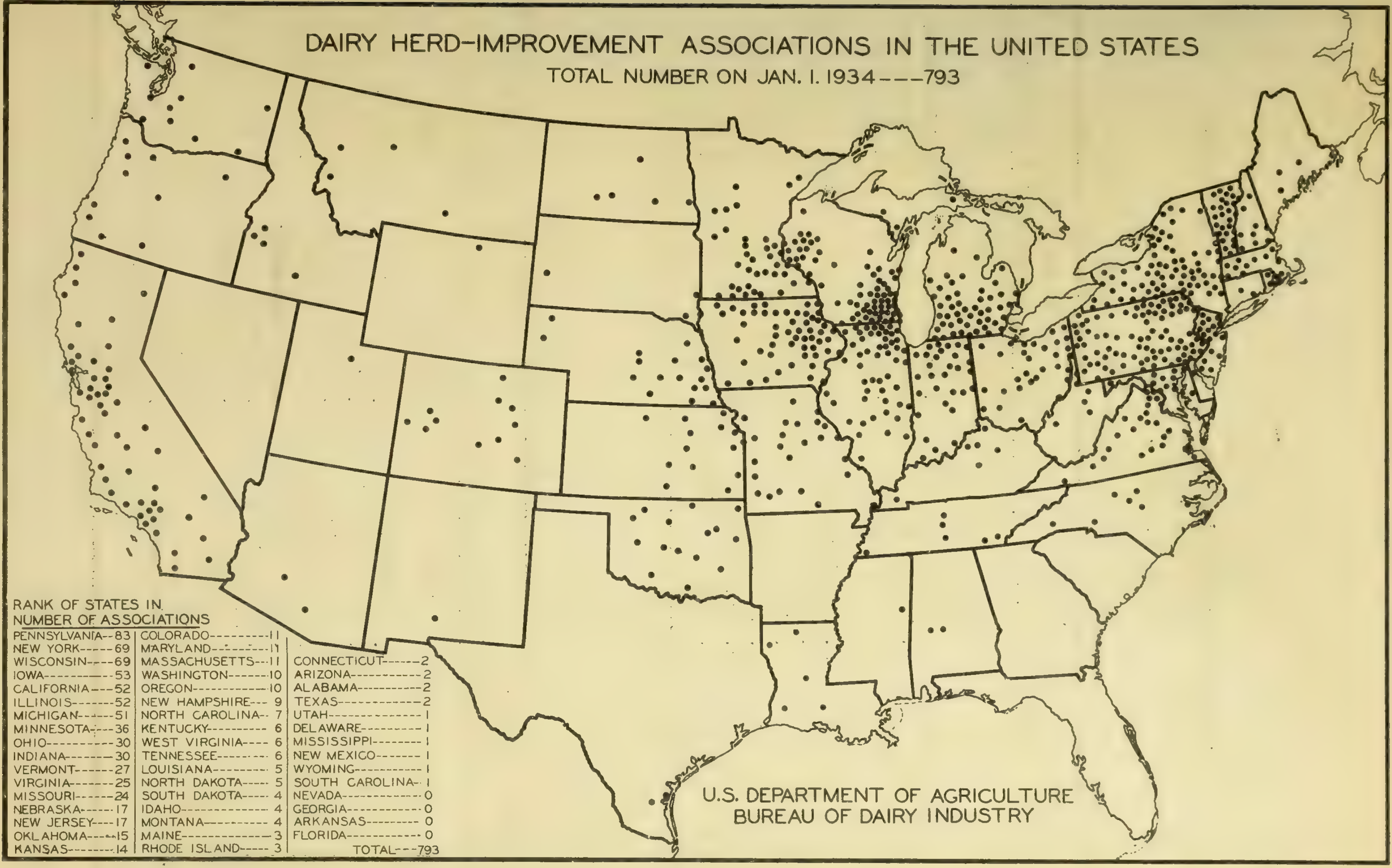
State	Number of associations	Number of herds	Number of cows	Average per association Herds	Average per association Cows	Total dairy cows in 1/ U.S.	Percentage of cows in D.H.I.A.'S
Alabama	2	18	1,173	9.0	586	430,000	.3
Arizona	2	26	1,002	13.0	501	46,000	2.2
California	52	994	58,229	19.1	1,120	619,000	9.4
Colorado	11	80	2,198	7.3	200	28[illegible],000	.8
Connecticut	2	48	1,419	24.0	710	114,000	1.2
Delaware	1	16	400	16.0	400	36,000	1.1
Idaho	4	57	946	14.2	236	208,000	.5
Illinois	52	971	17,914	18,7	344	1,165,000	1.5
Indiana	30	557	10,200	18.6	340	810,000	1.3
Iowa	53	1,078	19,223	20.3	363	1,593,000	1.2
Kansas	14	226	4,591	16.1	328	900,000	.5
Kentucky	6	125	2,321	20.8	387	554,000	.4
Louisiana	5	78	2,378	15.6	476	286,000	.8
Maryland	11	172	3,553	15,6	323	190,000	1.9
Maine	3	64	1,039	21.3	346	150,000	.7
Massachusetts	11	257	5,858	23.4	533	130,000	4.5
Michigan	51	812	12,463	15.9	244	902,000	1.4
Minnesota	36	546	10,206	15.2	284	1,850,000	.6
Mississippi	1	15	613	15.0	613	552,000	.1
Missouri	24	226	5,514	9.4	230	1,072,000	.5
Montana	4	33	934	8.2	234	211,000	.4
Nebraska	17	201	3,848	11.8	226	765,000	.5
New Hampshire	9	215	4,789	23.9	532	82,000	5.8
New Jersey	17	318	9,050	18.7	532	126,000	7.2
New Mexico	1	1	207	1.0	207	72,000	.3
New York	69	1,313	31,838	19.0	461	1,431,000	2.2
North Carolina	7	82	2,697	11.7	385	337,000	.8
North Dakota	5	29	694	5.8	139	701,000	.1
Ohio	30	514	9,835	17.1	328	995,000	1.0
Oklahoma	15	190	4,701	12.7	313	784,000	.6
Oregon	10	243	4,975	24.3	498	260,000	1.9
Pennsylvania	83	1,455	27,232	17.5	328	922,000	3.0
Rhode Island	3	69	2,268	23.0	756	22,000	10.3
South Carolina	1	9	270	9.0	270	156,000	.2
South Dakota	4	36	959	9.0	240	675,000	.1
Tennessee	6	66	1,378	11.0	230	543,000	.3
Texas	2	42	1,099	21.0	550	1,461,000	.1
Utah	1	37	520	37.0	520	113,000	.5
Vermont	27	476	11,126	17.6	412	297,000	3.7
Virginia	25	337	11,459	13.5	458	406,000	2.8
Washington	10	144	3,941	14.0	394	318,000	1.2
West Virginia	6	41	671	6.8	112	234,000	.3
Wisconsin	69	1,466	29,871	21.2	433	2,212,000	1.4
Wyoming	1	11	235	11.0	235	75,000	.3
Total	793	13,694	325,837			25,090,000 2/	
Average				17.3	411		1.3

1/ Estimates of the Bureau of Agricultural Economics.

2/ 44 States

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER ON JAN. 1. 1934---793



RANK OF STATES IN NUMBER OF ASSOCIATIONS

PENNSYLVANIA	83
NEW YORK	69
WISCONSIN	69
IOWA	53
CALIFORNIA	52
ILLINOIS	52
MICHIGAN	51
MINNESOTA	36
OHIO	30
INDIANA	30
VERMONT	27
VIRGINIA	25
MISSOURI	24
NEBRASKA	17
NEW JERSEY	17
OKLAHOMA	15
KANSAS	14
COLORADO	11
MARYLAND	11
MASSACHUSETTS	11
WASHINGTON	10
OREGON	10
NEW HAMPSHIRE	9
NORTH CAROLINA	7
KENTUCKY	6
WEST VIRGINIA	6
TENNESSEE	6
LOUISIANA	5
NORTH DAKOTA	5
SOUTH DAKOTA	4
IDAHO	4
MONTANA	4
MAINE	3
RHODE ISLAND	3
CONNECTICUT	2
ARIZONA	2
ALABAMA	2
TEXAS	2
UTAH	1
DELAWARE	1
MISSISSIPPI	1
NEW MEXICO	1
WYOMING	1
SOUTH CAROLINA	1
NEVADA	0
GEORGIA	0
ARKANSAS	0
FLORIDA	0
TOTAL	793

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

RANK OF THE TEN HIGH STATES IN DAIRY HERD-IMPROVEMENT ASSOCIATION WORK - BASED ON VARIOUS FACTORS
(January 1, 1933 - January 1, 1934)

Largest number of associations		Largest number of association members	
1933	1934	1933	1934
1. Pennsylvania	1. Pennsylvania	1. Wisconsin	1. Wisconsin
2. Wisconsin	2. Wisconsin) tie	2. Pennsylvania	2. Pennsylvania
3. New York	3. New York)	3. New York	3. New York
4. Iowa) tie	4. Iowa	4. Iowa	4. Iowa
5. California)	5. California) tie	5. California	5. California
6. Michigan	6. Illinois)	6. Illinois	6. Illinois
7. Illinois	7. Michigan	7. Michigan	7. Michigan
8. Minnesota	8. Minnesota	8. Ohio	8. Indiana
9. Ohio	9. Indiana) tie	9. Minnesota	9. Minnesota
10. Indiana	10. Ohio)	10. Indiana	10. Ohio

Largest number of cows in associations		Highest percentage of all cows on test	
1933	1934	1933	1934
1. California	1. California	1. California	1. Rhode Island
2. New York	2. New York	2. New Jersey	2. California
3. Wisconsin	3. Wisconsin	3. Rhode Island	3. New Jersey
4. Pennsylvania	4. Pennsylvania	4. New Hampshire	4. New Hampshire
5. Iowa	5. Iowa	5. Massachusetts	5. Massachusets
6. Illinois	6. Illinois	6. Vermont	6. Vermont
7. Indiana	7. Michigan	7. Pennsylvania) tie	7. Pennsylvania
8. Michigan	8. Virginia	8. Virginia)	8. Virginia
9. Virginia	9. Vermont	9. Oregon	9. Arizona) tie
10. Minnesota	10. Minnesota	10. New York) tie Washington)	10. New York)

TESTING CIRCLES ACTIVE JANUARY 1, 1934

State	Number of circles	Number of herds	Number of cows	Average per circle Herds	Average per circle Cows
Arizona	1	4	43	4.0	43
*California	1	3	55	3.0	55
*Colorado	1	3	25	3.0	25
Connecticut	2	26	495	13.0	248
Georgia	1	10	383	10.0	383
Idaho	5	64	596	12.8	119
Maryland	2	10	360	5.0	180
Massachusetts	1	12	313	12.0	313
Minnesota	52	650	8,000	12.5	154
Nebraska	5	50	191	10.0	38
Nevada	2	19	420	9.5	210
New Jersey	2	40	800	20.0	400
Ohio	3	26	218	8.7	73
Pennsylvania	3	170	2,152	56.7	717
*Rhode Island	1	2	26	2.0	26
Wisconsin	3	31	461	10.3	154
Total	85	1,120	14,538		
Average				13.2	171

*Mail testing

COMPARATIVE STATUS OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS AND TESTING CIRCLES, 1933 and 1934

	Jan. 1, 1933	Jan. 1. 1934	Gain or Loss
Number of associations	881	793	-88
Number of herds in associations	15,447	13,694	-1,753
Number of cows in associations	358,501	325,837	-32,664
Ave. No. herds per association	17.5	17.3	-.2
Ave. No. cows per association	407	411	+ 4
Ave. No. cows per herd	23	24	+ 1
Number of testing circles	18	85	+ 67
Number of cows in testing circles	3,947	14,538	+10,591

NUMBER OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS, BY STATES, 1906-1934 INCLUSIVE

Up to and including 1923 data were collected on July 1. Beginning with 1924, reports were made by calendar years. Since 1925 data are of January 1.

	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
Mich	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	94	90	88	69	58	51
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0	5	5	5	4	3
N.Y.			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	54	51	69	79	74	69
Vt.				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23	23	28	29	26	27
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86	101	101	100	82	60	53
Calif.				1	3	2	4	4	5	7	8	15	16	14	18	21	21	27	20	30	35	32	32	33	31	62	60	52
Wis.				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166	154	142	131	96	78	69
Nebr.				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23	28	29	26	20	17
Colo.					1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	14	15	15	15	15	11
Pa.					1	1	2	2	7	14	19	24	21	35	64	45	45	36	42	43	49	65	76	88	83	85	86	83
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29	39	33	37	36	31	30
Wash.					1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12	15	12	15	13	10
Md.						1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8	9	13	11	9	11
Ill.						4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51	59	62	57	53	52
Minn.						3	7	10	9	11	22	26	23	21	19	23	37	55	88	84	85	105	117	120	96	69	45	36
N. H.						1	1	1	4	8	11	12	8	9	10	10	11	10	5	4	2	4	7	7	8	9	9	9
Ore.						1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14	14	16	16	14	10
Utah.						1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5	8	6	7	1	1
Mass.						2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11	11	13	13	14	11
Va.						2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	20	20	20	20	25	28	25
Kans.								1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	20	22	25	18	17	14
Ind.								2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	41	51	37	32	30	30
Ky.								1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8	12	12	8	6	6
Mo.									2	1	2	5	4	5	6	7	11	12	13	19	21	25	34	36	34	28	29	24

Number of Dairy Herd-Improvement Associations, By States, 1906-1934 Inclusive (continued)

	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
N. J.									2	3	4	8	9	9	12	8	6	6	6	9	11	17	18	16	15	17	16	17
W. Va.									1	1	3	1	1	1	3	5	5	6	3	3	3	4	6	7	9	6	5	6
Conn.									1	3	6	3	0	0	1	0	2	1	1	2	4	5	3	4	4	2	2	2
N. C.									2	0	0	0	0	0	2	2	0	0	2	5	5	5	8	7	7	8	9	7
La.									1	0	0	0	0	0	1	0	0	0	0	0	1	2	2	2	3	2	6	5
S. Dak.									1	1	3	3	0	0	0	0	0	4	11	9	10	8	14	12	12	7	4	4
Nevada										1	0	1	0	0	0	1	1	4	3	1	3	0	1	0	0	0	0	0
Ariz.											2	2	1	0	0	2	1	1	2	1	1	2	3	4	3	2	2	2
R. I.											2	2	0	0	4	4	4	3	0	0	0	0	1	1	1	2	2	3
Del.											2	3	2	2	1	0	0	0	0	0	0	0	1	1	1	1	1	1
Idaho											2	1	1	4	5	6	4	8	8	8	9	12	13	13	12	10	5	4
Miss.											1	0	0	0	0	3	2	1	1	2	0	1	1	2	3	3	2	1
Mont.											1	2	0	0	0	0	0	2	4	3	7	7	8	9	9	8	6	4
Tenn.											1	8	4	6	3	3	4	2	2	2	2	3	7	10	10	8	8	6
N. Mex.												1	0	0	0	1	1	1	0	1	1	2	2	1	1	1	1	1
Wyo.												1	0	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1
Ala.													2	1	3	1	1	0	0	0	1	3	4	7	6	4	3	2
Ga.													1	0	0	0	0	0	0	0	1	1	2	1	0	1	1	0
N. Dak.													1	1	1	2	6	8	5	3	6	4	7	9	9	5	7	5
Okla.														1	1	2	1	3	5	5	5	12	22	25	21	20	15	1
S. C.														1	1	1	0	0	0	0	0	0	1	3	2	0	1	1
Tex.														3	0	0	0	0	0	0	1	3	6	7	5	5	3	2
Ark.															1	2	2	2	0	0	0	2	*	1	3	*	1	0
Fla.																							1	2	0	0	0	0
Total	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	1090	1143	1112	1005	881	79

*No report

GROWTH OF DAIRY HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES

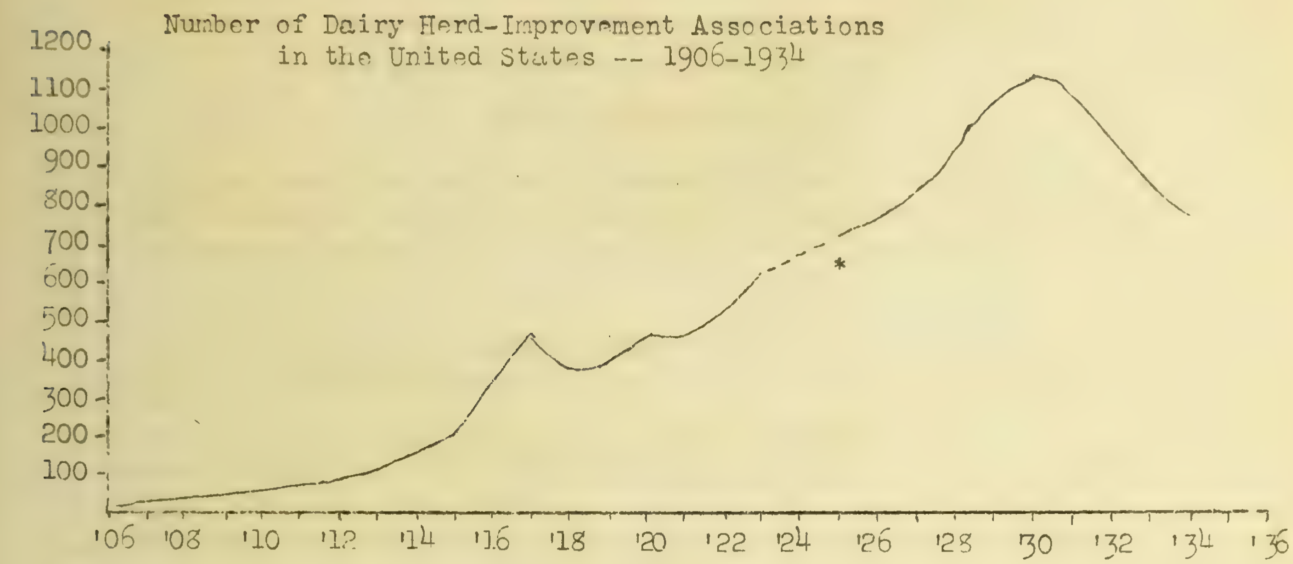
(1906 - 1934 Inclusive)

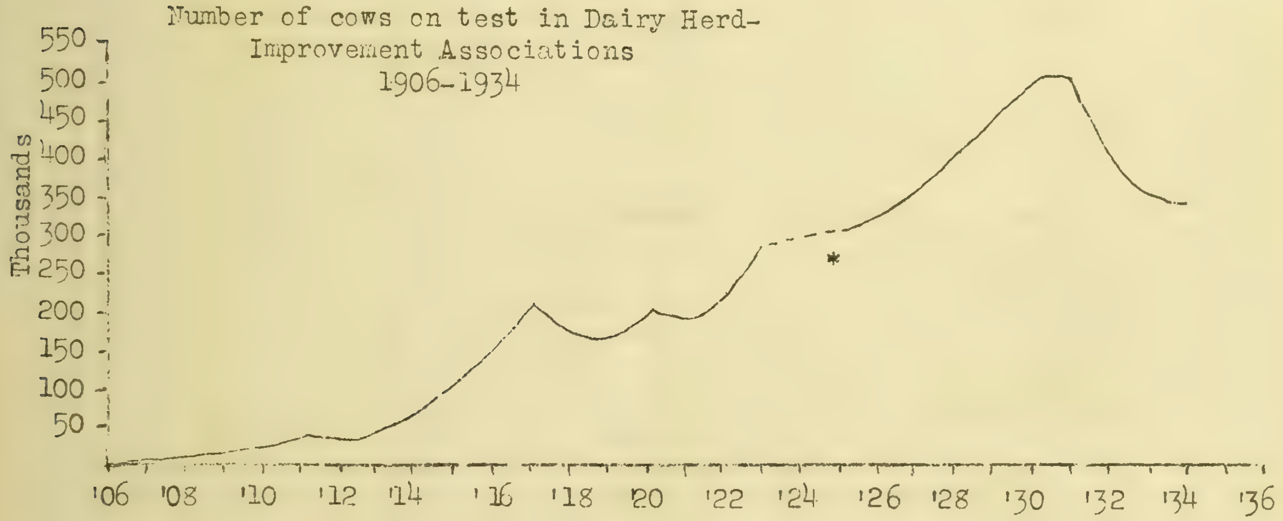
Year	No. of ass'ns.	No. of cows on test	Ave. b'fat. prod. of cows on test (pounds)
1906	1	239	215
1907	4	1,606	220
1908	6	3,921	-
1909	25	11,686	-
1910	40	25,000 1/	-
1911	64	40,000 1/	-
1912	82	43,000 1/	-
1913	100	47,150	-
1914	163	73,230	-
1915	211	105,526	-
1916	346	150,677	-
1917	459	216,331	-
1918	353	172,518	-
1919	385	167,313	-
1920	463	203,472	247
1921	452	193,928	-
1922	513	215,321	-
1923	627	277,010	-
2/1924			
1925	732	307,073	284
1926	777	327,653	289
1927	837	362,014	293
1928	947	414,891	296
1929	1,090	465,804	298
1930	1,143	507,549	303
1931	1,112	510,714	306
1932	1,005	427,044	310
1933	881	363,501	-
1934	793	325,837	-

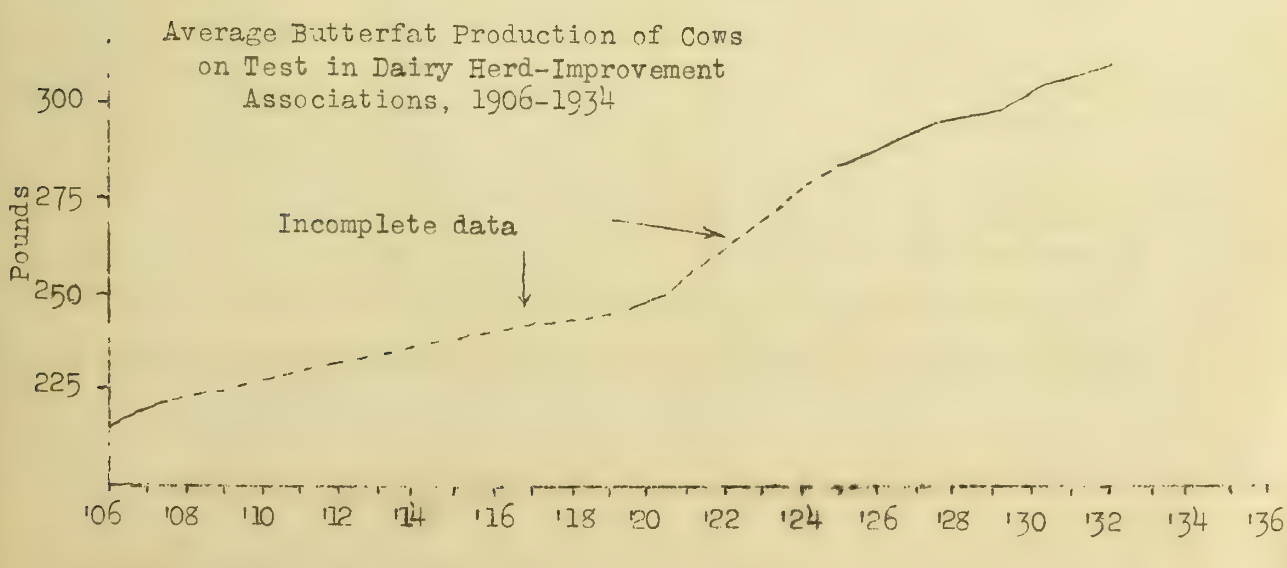
1/ Estimated.

2/ Date for collecting data changed in 1924 from July 1 to January 1.

On the following page the above data are presented graphically.


Number of Dairy Herd-Improvement Associations in the United States -- 1906-1934


Number of cows on test in Dairy Herd-Improvement Associations 1906-1934


Average Butterfat Production of Cows on Test in Dairy Herd-Improvement Associations, 1906-1934

* Date for collecting data changed in 1924 from July 1 to January 1.

PROVED SIRE REPORT

Eighteen sires were proved in six States during January (1934) by the lactation method and one sire was re-proved. The following table gives a detail report of the proved sire work:

NUMBER OF SIRES PROVED

STATE	During 1932	During 1933	During January 1934			Number of sires re-proved during January 1934
			Total	Increased butterfat production	Decreased butterfat production	
California....	26	15	3	1	2	
Idaho.........	10	8				
Illinois......	7	25	2	1	1	
Iowa..........	12	35	6	5	1	
Kentucky......		1				
Massachusetts.	2					
Michigan......	8					
Minnesota.....	7	8				
Mississippi...	1					
Missouri......	1					
Nebraska......	1	9				
New Hampshire.		4				
New Jersey....		34	1		1	
New Mexico....		2				
New York......	69	109	5	4	1	1
North Carolina	2					
Oklahoma......		3				
Pennsylvania..		17				
Virginia......	10	13				
Washington....	2	3				
Wisconsin.....		4	1	1		
Total	158	290	18	12	6	1

"AT LEAST ONE SIRE PROVED FOR EACH D.H.I.A. IN 1934"

LEADING SIRES PROVED IN JANUARY

In response to requests for records of the leading sires proved each month records are given for the sire whose daughters showed greatest gain over their dams when the average production level of the dams was (1) under 300 pounds butterfat, (2) between 300 pounds and 400 pounds butterfat, and (3) over 400 pounds butterfat. The leading sires for the month of January mated to dams of these classes are as follows:

BUTTERFAT-PRODUCTION CLASS OF DAMS

	Under 300 Pounds		300-400 Pounds		Over 400 Pounds	
State:	Illinois		Iowa		Iowa	
Breed:	Holstein		Jersey		Guernsey	
	Dams lbs.	Daughters lbs.	Dams lbs.	Daughters lbs.	Dams lbs.	Daughters lbs.
	254	345	237	576	430	479
	234	451	237	377	378	467
	366	406	296	391	454	397
	310	331	332	432	457	530
	291	349	502	447	518	460
	301	416	436	454	452	388
	382	479				
	201	661				
	267	500				
	382	427				
	382	388				
	203	407				
	296	494				
	256	345				
	400	350				
	234	274				
	231	406				
	273	313				
Average production	292	408	340	446	448	454
Average increase (pounds)		116		106		6
Average increase (percent)		39.5		31.2		1.2

OFFICIALS IN CHARGE OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE STATES

ALABAMA........F.W.Burns, Ext. Service, College of Agri., Auburn.
ARIZONA........C.F. Rowe, Ext. Service, College of Agri., Tucson.
ARKANSAS.......C.O. Jacobson, Ext. Service, College of Agri., Fayetteville.
CALIFORNIA.....G.E. Gordon, Ext. Service, College of Agri., Berkeley.
COLORADO.......C.A. Smith, c/o State Dairy Commissioner, Fort Collins.

CONNECTICUT....A.I. Mann, Ext. Service, Connecticut Agri. College, Storrs.
DELAWARE.......C.A. McCue, Director of Ext., School of Agri., Newark.
FLORIDA........H.L. Brown, Ext. Division, College of Agri., Gainesville.
GEORGIA........F.W. Fitch, Ext. Division, Georgia State College of Agri., Athens.
IDAHO..........D.L. Fourt, State House, Boise.

ILLINOIS.......C.S. Rhode, Ext. Service, College of Agri., Urbana.
INDIANA........G.A. Williams, Dept. of Agri. Ext., School of Agri., Lafayette.
IOWA...........Floyd Johnston, Agri. Ext., Iowa State College of Agri., Ames.
KANSAS.........J.W. Linn, Ext. Division, Kansas State College of Agri., Manhattan.
KENTUCKY.......Ted S. Besh, Ext. Service, College of Agri., Lexington.

LOUISIANA......E.W. Neasham, Ext. Department, A. & M. College, Baton Rouge.
MAINE..........R.F. Talbot, Ext. Service, College of Agri., Orono.
MARYLAND.......J.A. Conover, Ext. Service, College of Agri., College Park.
MASSACHUSETTS..C.J. Fawcett, Ext. Service, Massachusetts Agri. College, Amherst.
MICHIGAN.......A.C. Baltzer, Ext. Service, Michigan State College of Agri., E.Lansing

MINNESOTA......Ramer Leighton, Agri. Ext.,College of Agri.,University Farm, St. Paul
MISSISSIPPI....L.A. Higgins, Ext. Service, State College.
MISSOURI.......M.J. Regan, Agri. Ext. Service, College of Agri., Columbia.
MONTANA........J.O. Tretsven, Ext. Service, Montana State College of Agri.,Bozeman.
NEBRASKA.......M.L. Flack, Ext. Service, College of Agri., Lincoln.

NEVADA.........V.E. Scott, Agri. Ext., College of Agri., Reno.
NEW HAMPSHIRE..E.F. Eastman, Ext. Service, College of Agri., Durham.
NEW JERSEY.....E.J. Perry, Division of Ext., State College of Agri.,New Brunswick.
NEW MEXICO.....E.E. Anderson, Ext. Service. N.M.College of Agri., State College.
NEW YORK.......W.T. Crandall, Ext. Service, N.Y. State College of Agri., Ithaca.

NORTH CAROLINA.J.A. Arey, Ext. Service, North Carolina State College of Agri.,
State College Station, Raleigh.
NORTH DAKOTA...E.J. Haslerud, Agri. Ext., North Dakota Agri. College, Fargo.
OHIO...........Ivan McKellip, Agri. Ext. Work, College of Agri., Columbus.
OKLAHOMA.......J.W. Boehr, Ext. Service, Oklahoma A. & M. College, Stillwater.
OREGON.........R.W. Morse, Ext. Service, Oregon Agri. College, Corvallis.
PENNSYLVANIA...C.R. Gearhart, Agri. Ext., School of Agri., State College.
I.O. Sidelmann, " " " " " "
RHODE ISLAND...J.E. Ladd, Ext. Service, Rhode Island State College, Kingston.
SOUTH CAROLINA.C.G. Cushman, Ext. Service, Clemson Agri. College, Clemson College.
SOUTH DAKOTA...G. Heebink, Ext. Division, South Dakota State College of Agri. Brookings.
TENNESSEE......C.A. Hutton, Agri. Ext., College of Agri., Knoxville.
TEXAS..........J.L. Thomas, Ext. Service, A.& M. College of Texas, College Station.
UTAH...........Wm. Peterson, Director of Ext., Agri. College of Utah, Logan.

VERMONT........E.H. Loveland, Ext. Service, College of Agri., Burlington.
VIRGINIA.......R.W. Dickson, Ext. Division, Va. A. & M. College, Blacksburg.
WASHINGTON.....F.E. Balmer, Director of Ext., State College of Agri., Pullman.
WEST VIRGINIA..J.V. Hopkins, Ext. Division, College of Agri., Morgantown.
WISCONSIN......A.J. Cramer, Agri. Ext. Service, College of Agri., Madison.
WYOMING........J.R. Neale, Agri. Ext., College of Agri., Laramie.

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Cull by Test
DAIRY HERD IMPROVEMENT ASSOCIATIONS
Keep the Best

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 10, No. 3

March 1934

COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1934

(as reported by State dairy extension specialists)

On January 1, 1934 there were 351 active Cooperative Bull Associations in 26 States. This is 9 more than were reported January 1, 1933 when 342 bull associations were in operation. In the associations now active there are approximately 6,171 members who own cooperatively more than 1,564 registered dairy bulls which are bred annually to more than 53,073 cows.

Seven States (Georgia, Illinois, Maryland, Nebraska, New Jersey, New York and Texas) gained in number of bull associations. Seven States (Georgia, Maryland, Nebraska, New Jersey, New York, Texas and Virginia) gained in total number of bulls in bull associations.

Low-cost, Long-time Breeding Program

Dairymen may have a low-cost, long-time breeding program by means of a Cooperative Bull Association. Such a program is practical for every dairyman and affords economies especially attractive to the owner of a small dairy herd. Few dairymen with small herds are financially able to own good bulls individually. In many instances bull associations afford the only opportunity these dairymen have to obtain the use of a good sire. By systematic exchange of bulls every two years bull association members with only one investment may have a breeding program covering several years.

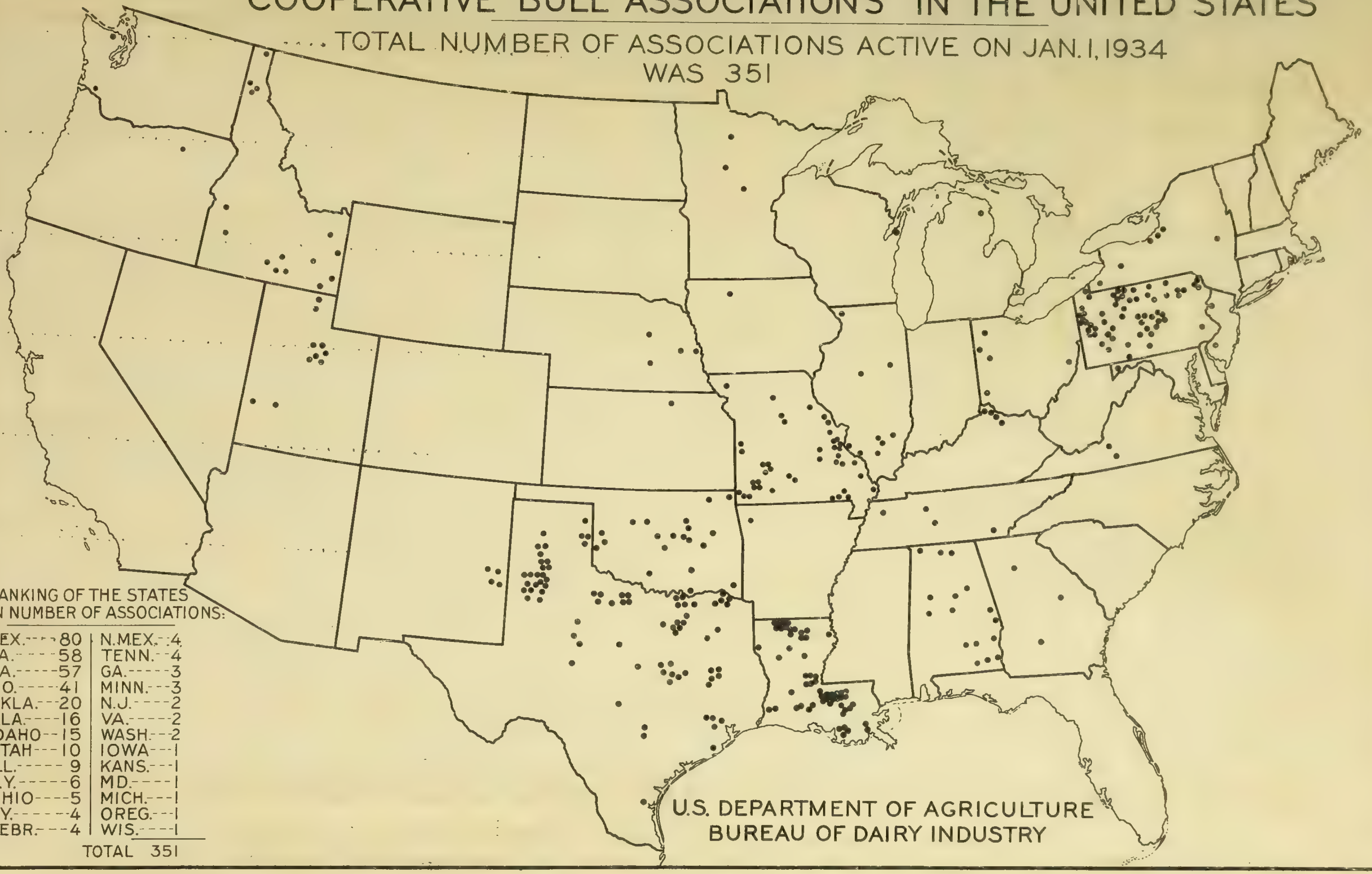
Adverse economic conditions among dairy farmers has caused them to somewhat neglect the breeding program for their herds. Dairymen still need to be impressed with the fact that a good constructive long-time breeding program is a sound investment. Such a program can be economically inaugurated and carried out through a Cooperative Bull Association.

COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1934

State	Number of ass'ns.	Number of members	Number of bulls	Breed of bulls used 1/					Number of cows in all associations		
				J.	H.	G.	A.	SH.	Reg.	Other	Total
Alabama	16	296	101	101					400	2,150	2,550
Georgia	3	95*	9	9					43	620	663
Idaho	15	342	64	8	47	9			467	1,760	2,227
Illinois	9	182*	45*	21	12	12			153*	810*	963*
Iowa	1	8	5		5				80	120	200
Kansas	1	4	3		3				50	20	70
Kentucky	4	39	15	6	6	3			175	158	333
Louisiana	57	821	225	202		23			889	8,783	9,672
Maryland	1	6	6	6					14	57	71
Michigan	1	28	3			3			31	176	207
Minnesota	3	199	35		16	19			630	1,090	1,720
Missouri	41	457	141	96	33	12			no	report	4,145*
Nebraska	4	50	28	4	24				108	187	295
New Jersey	2	9	9		9				113	57	170
New Mexico	4	16	13	13					31	209	240
New York	6	49	28		15	13			774	257	1,031
Ohio	5	78	19	9	7	3			532	132	664
Oklahoma	20	542	94	75	15		4		2,268	3,456	5,724
Oregon	1	10	3	3					25	75	100
Pennsylvania	58	525	219	40	124	47	8		6,105	4,032	10,137
Tennessee	4	497	38	38					519	1,042	1,561
Texas	80	1,085	407	400	4			3	*	*	6,848*
Utah	10	759	36	22	14				175*	1,965*	2,786*
Virginia	2	13	9		9				178	161	339
Washington	2	25	6	3		3			30	230	260
Wisconsin	1	36	3		3				14	83	97
Total	351	6,171*	1,564*	1,056	346	147	12	3	13,804*	27,630*	53,073*

1/ J. - Jersey
H. - Holstein
G. - Guernsey
A. - Ayrshire
SH. - Shorthorn

* Incomplete data



COOPERATIVE BULL ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER OF ASSOCIATIONS ACTIVE ON JAN. 1, 1934 WAS 351

RANKING OF THE STATES IN NUMBER OF ASSOCIATIONS:

TEX.	80	N.MEX.	4
PA.	58	TENN.	4
LA.	57	GA.	3
MO.	41	MINN.	3
OKLA.	20	N.J.	2
ALA.	16	VA.	2
IDAHO	15	WASH.	2
UTAH	10	IOWA	1
ILL.	9	KANS.	1
N.Y.	6	MD.	1
OHIO	5	MICH.	1
KY.	4	OREG.	1
NEBR.	4	WIS.	1

TOTAL 351

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

NUMBER OF COOPERATIVE DAIRY BULL ASSOCIATIONS, BY STATES, 1908-1934 INCLUSIVE

Up to and including 1923 data were collected on July 1. Beginning with 1924, reports were made by calendar years. Since 1925 data are as of January 1.

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
Mich.	3	7	8	9	7	8	9	8	8	8	7	7	7	7	5	7	6	4	4	6	6	2	1	1	1	1
Minn.		1	1	1	1	2	2	2	3	3	3	4	6	15	19	17	18	19	20	*	*	0	2	3	4	3
Md.				1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	1	0	0	0	0	0	1
N.Dak.					2	1	1	1	1	1	1	1	1	1	1	2	3	2	1	0	1	0	0	0	0	0
Vt.							1	1	1	1	1	2	3	5	4	2	2	1	1	1	0	0	1	1	1	0
Oreg.								1	2	2	2	2	2	2	2	1	1	1	1	1	1	*	1	*	1	1
Wis.								1	1	1	1	2	1	3	4	4	0	0	0	0	0	0	1	1	1	1
Ill.									1	1	1	1	1	1	6	7	8	11	11	10	12	11	9	10	8	9
Iowa									1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1
Mass.									1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. C.									1	4	5	8	9	9	9	9	3	2	0	0	0	0	0	0	0	0
S. C.									3	9	9	11	17	20	23	16	10	9	6	5	0	0	0	0	0	0
Pa.										2	4	10	21	21	27	24	28	38	43	58	64	71	70	67	61	58
Mo.										1	1	1	3	7	10	10	10	12	15	27	31	23	34	39	42	41
Ind.											1	3	5	7	7	7	4	3	1	0	0	0	0	0	0	0
Utah											3	2	2	2	3	8	14	14	15	11	18	20	15	13	10	10
Mont.											1	2	2	2	0	1	1	1	0	0	0	0	0	0	0	0
Kans.											1	1	1	1	1	2	1	1	2	4	3	2	2	2	2	1
Ala.												1	7	7	7	7	7	0	0	1	2	6	10	14	16	16
Ga.												2	1	1	0	0	2	2	0	0	0	0	0	3	2	3
La.												1	1	1	1	1	1	3	9	21	53	75	52	66	68	57
Miss.												6	11	12	10	9	8	7	4	7	21	10	5	5	4	0
N.J.												1	4	6	8	8	2	0	0	0	0	0	2	2	1	2
R.I.												1	1	1	1	0	0	0	0	0	*	0	0	0	0	0

Number of Cooperative Dairy Bull Associations, By States, 1908-1934 Inclusive (continued)

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
Tenn.												2	2	2	2	4	4	4	4	4	4	3	3	4	4	4
Wash.												1	2	2	3	3	4	4	5	6	4	3	3	3	2	2
Wyo.												2	2	2	2	2	1	1	1	0	0	0	0	0	0	0
Ark.													3	2	4	6	6	7	9	2	*	3	9	*	4	0
Idaho													3	6	9	29	32	32	31	22	18	20	21	20	16	15
Nev.													1	1	1	1	1	2	2	1	1	0	0	0	0	0
Okla.													1	1	1	4	7	7	9	14	20	28	37	39	25	20
Ky.														3	7	9	17	18	17	*	*	0	2	3	5	4
Conn.														1	1	2	2	2	2	0	0	0	0	0	0	0
N.H.														1	0	0	0	0	0	0	0	0	0	0	0	0
Va.														1	1	2	2	2	2	2	2	0	0	1	2	2
W. Va.														1	1	1	0	0	0	0	0	0	0	0	0	0
Fla.														1	1	1	0	0	1	0	2	2	3	0	0	0
Nebr.															1	2	4	5	4	1	1	1	1	1	1	4
Ohio															2	2	3	3	3	3	7	7	8	8	6	5
Tex.															2	2	0	0	17	19	57	**	57	87	48	80
Me.																2	1	0	0	*	2	2	1	0	0	0
N.Mex.																	1	1	1	2	3	4	7	7	5	4
S.Dak.																	1	2	2	4	3	2	1	1	6	0
Del.																			1	*	1	0	0	0	0	0
N.Y.																								1	1	6
Total	3	8	9	11	11	12	14	15	24	36	44	78	123	158	190	218	220	225	248	235	339	296	359	403	342	351

* No report
**Incomplete data.

PROVED-SIRE REPORT

Twenty-three sires were proved in seven States during February (1934) by the lactation method and one sire was re-proved. The following table gives a detailed report of the proved-sire work:

NUMBER OF SIRES PROVED

STATE	During 1932	During 1933	During January 1934	During February 1934			Number of sires re-proved during February 1934
				Total	Increased butterfat production	Decreased butterfat production	
Calif..	26	15	3	2	2		
Idaho..	10	8		1		1	
Ill....	7	25	2	4	1	3	
Iowa...	12	35	6	5	5		
Ky.....		1					
Mass...	2						
Mich...	8						
Minn...	7	8		4	1	3	
Miss...	1						
Mo.....	1						
Nebr...	1	9					
N.H....		4					
N.J....		34	1				
N.Mex..		2					
N.Y....	69	109	5	6	1	5	
N.C....	2						
Okla...		3					
Pa.....		17					
Va.....	10	13		1	1		1
Wash...	2	3					
Wis....		4	1				
Total	158	290	18	23	11	12	1

"AT LEAST ONE SIRE PROVED FOR EACH D.H.I.A. IN 1934"

LEADING SIRES PROVED IN FEBRUARY

Each month records are given for sires proved whose daughters show greatest gain over their dams when the average production level of the dams was (1) under 300 pounds butterfat, (2) between 300 pounds and 400 pounds butterfat, and (3) over 400 pounds butterfat. The leading sires for the month of February mated to dams of those classes are as follows:

BUTTERFAT-PRODUCTION CLASS OF DAMS

	Under 300 Pounds		300-400 Pounds		Over 400 Pounds	
State:	Illinois		Iowa		California	
Breed:	Holstein		Jersey		Guernsey	
	Dams lbs.	Daughters lbs.	Dams lbs.	Daughters lbs.	Dams lbs.	Daughters lbs.
	393	278	304	427	466	486
	385	427	482	555	430	561
	177	492	258	393	518	600
	263	277	389	525	446	404
	261	341	407	568	531	440
	311	502			377	591
					579	400
					375	310
					520	505
					377	611
					483	544
					376	538
					356	635
					408	348
					480	408
Average production	298	386	368	494	448	492
Average increase (pounds)		88		126		44
Average increase (percent)		29.4		34.1		9.8

FEED RECORDS

About 15,000 yearly individual cow feed-records have been tabulated and studied for the testing year ended in 1932. Only the feed-record reports that were filled out in full giving name and weight of each kind of feed could be used. Many records had to be discarded because feed names were omitted or because no mention was made of days on pasture. Too often it was impossible to determine whether the roughage was dry or succulent roughage. In case of any doubt the only course to follow was to discard the record altogether. This year it is planned to tabulate and study in every way possible all feed records that are carefully and completely filled out by the testers and to furnish each State with tables made from the feed records of the cows on test in that State. Such information will have value only in proportion to the accuracy of the feed records as reported in the annual reports for the associations. May we count on you to help us make these records more accurate?

Cull by Test

DAIRY HERD IMPROVEMENT ASSOCIATIONS

Keep the Best

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON. D.C.

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JUN 19 1934

Dairy Herd-Improvement Association Letter Vol. 10 No. 4

April 1934

DISCARDED COWS

One cow in 12 is discarded each year, on the average, by dairy herd-improvement association members because of low production. One in 12 is also discarded because of disease or some cause other than low production. Approximately one cow in 20 is sold each year for dairy purposes to other dairymen. The total amount of culling, on the average farm in these associations, amounts to 20 percent of the herd.

These facts are revealed in a summary of data collected by the Bureau of Dairy Industry during the last 2 years to determine why cows were culled. Data from 25 States were studied and the results tabulated on a yearly basis. Cows were discarded for the following reasons: (1) low production, (2) udder trouble, (3) sterility, (4) abortion, (5) died, (6) old age, (7) tuberculosis, (8) accident, (9) sold for dairy purposes, (10) other reasons.

The table on the following page shows the amount of culling done for the various reasons by States.

COW WASTAGE

Thirty-eight percent of the cows discarded were culled because of low production. This represents a cow-wastage of approximately 8 percent. In other words, for each 12 cows the dairy herd-improvement association member raises, one proves to be inferior and must be discarded. The average dairyman experiences a greater loss than this as dairy herd-improvement association members give more thought to the selection of the cows which they place in their herds than do dairymen generally. This loss, taking the dairy industry as a whole, amounts to a tremendous figure. Dairymen can greatly reduce cow-wastage by using good sires and raising only those heifer calves which have good prospects of being high-producing cows.

SUMMARY OF DATA FROM TWENTY-FIVE STATES ON CULLING IN DAIRY HERDS IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

State	Number of cows in herds reported	Culled Cows		Percentage of culled cows discarded because of--									
		Number	Percent	Low production	Udder trouble	Sterility	Abortion	Died	Old age	T.B.	Accident	Sold for dairy purposes	Other reasons
Pa.	30,635	5,339	17.4	37.1	8.0	7.4	6.5	5.9	3.4	3.0	2.1	23.7	2.9
Calif.	23,438	4,807	20.5	45.1	5.9	6.0	9.8	2.6	3.4	15.1	1.4	10.4	.4
Conn.	1,827	372	20.4	30.1	11.8	11.5	14.0	5.4	4.0	3.0	1.9	14.0	4.3
Idaho	1,684	448	26.6	22.3	5.4	8.1	8.3	8.0	2.9	-	2.2	40.8	2.0
Ill.	13,971	3,662	26.2	49.2	7.0	6.0	4.0	5.9	2.7	3.5	.9	18.2	2.6
Ind.	6,173	1,004	16.3	50.5	4.9	4.7	5.9	10.3	2.9	6.1	.3	12.5	1.9
Iowa	16,173	3,899	24.1	36.0	7.4	8.5	2.8	8.1	1.8	4.1	.6	29.2	1.5
Kan.	898	173	19.3	25.4	17.3	5.2	5.2	10.4	4.1	.6	-	31.2	.6
Md.	4,483	530	11.8	35.5	6.2	4.7	15.3	6.8	5.5	2.1	2.2	18.5	3.2
Minn.	22,141	4,680	21.1	44.0	8.4	7.3	5.4	6.1	4.0	2.5	1.4	18.7	2.2
Miss.	375	59	15.7	25.4	13.6	6.8	5.1	13.6	13.5	1.7	3.4	10.2	6.7
Mont.	327	33	10.1	45.4	15.2	-	18.2	-	12.1	9.1	-	-	-
Neb.	671	101	15.0	43.6	9.9	5.0	2.0	4.9	1.0	14.8	-	18.8	-
N.H.	4,300	600	14.0	34.3	5.5	9.6	2.8	3.5	5.5	1.7	5.0	31.9	.2
N.J.	810	205	25.3	36.1	11.7	14.6	.5	3.4	2.0	1.9	.5	25.4	3.9
N.Y.	26,892	7,361	27.4	29.3	9.6	5.9	4.3	4.9	3.5	13.7	2.0	24.4	2.4
N.C.	1,164	106	9.1	31.1	9.4	6.6	11.3	9.4	3.8	-	-	27.4	1.0
Okla.	3,629	308	8.5	47.1	2.0	2.3	.6	3.6	.6	-	.6	33.8	9.4
Ore.	6,126	472	7.7	45.8	4.9	1.9	11.9	6.1	3.4	2.1	1.9	20.1	1.9
S.D.	1,462	286	19.6	33.2	13.6	6.7	.7	10.1	1.0	4.6	1.1	25.5	3.5
Texas	846	116	13.7	21.5	-	21.6	-	10.3	1.7	.9	-	44.0	-
Vt.	5,517	673	12.2	33.0	6.8	4.1	1.2	4.0	2.4	2.7	.9	41.9	3.0
Wash.	900	95	10.6	71.6	1.0	9.5	1.1	7.4	-	-	1.0	8.4	-
W.Va.	622	123	19.8	42.3	4.1	4.9	17.8	8.1	6.5	-	5.7	10.6	-
Wis.	6,766	1,457	21.5	35.4	7.8	5.6	6.5	5.2	5.3	.4	1.1	31.7	1.0
	181,830	36,909	20.3	38.6	7.7	6.7	5.7	5.6	3.4	6.7	1.5	22.0	2.1

NUMBER OF SIRES PROVED

STATE	During 1932	During 1933	In 1934 to Apr.1	During March 1934			Number of sires re-proved during March 1934
				Total	Increased butterfat production	Decreased butterfat production	
Calif..	26	15	7	2	2		
Idaho..	10	8	2	1	1		
Ill....	7	25	9	3		3	
Iowa...	12	35	19	8	4	4	
Ky.....		1					
Mass...	2						
Mich...	8						
Minn...	7	8	4				
Miss...	1						
Mo.....	1						
Nebr...	1	9	1	1	1		
N.H....		4					
N.J....		34	3	2	2		1
N.Mex..		2					
N.Y....	69	109	18	7	6	1	
N.C....	2						
Okla...		3					
Pa.....		17					
Va.....	10	13	1				
Vt.....			2	2	2		
Wash...	2	3					
Wis....		4	1				
Total	158	290	67	26	18	8	1

PROVED SIRE WORK

Forty-one States have elected to prove sires by the lactation-record method. Six States chose to continue the 12-month method for the time being. One State has not yet decided which method it will use.

The goal in 1934 is to prove at least one sire by the lactation method for each dairy herd-improvement association in operation. Three months of 1934, one-fourth of the year, have passed. If this goal is to be reached in every State during the year, 25 percent of the goal should be already attained. The following table lists the 36 States (5 of the 41 States mentioned above have no active dairy herd-improvement associations) having dairy herd-improvement associations in operation which are proving sires by the lactation method, and the progress each State has made toward the goal of "AT LEAST ONE PROVED SIRE FOR EACH D.H.I.A. IN 1934".

Status of proved sire work in dairy herd-improvement associations for first quarter of 1934, by States

State	Number of associations active on Jan. 1, 1934	Number of sires proved in Jan., Feb., and Mar., 1934	Percentage of 1934 goal attained
Alabama	2		
California	52	7	13.46
Colorado	11		
Connecticut	2		
Delaware	1		
Idaho	4	2	50.00
Illinois	52	9	17.31
Indiana	30		
Iowa	53	19	35.85
Kentucky	6		
Louisiana	5		
Maryland	11		
Maine	3		
Massachusetts	11		
Michigan	51		
Minnesota	36	4	11.11
Montana	4		
Nebraska	17	1	5.88
New Hampshire	9		
New Jersey	17	3	17.65
New Mexico	1		
New York	69	18	26.09
North Carolina	7		
North Dakota	5		
Oklahoma	15		
Oregon	10		
Rhode Island	3		
South Carolina	1		
Tennessee	6		
Texas	2		
Utah	1		
Vermont	27	2	7.41
Virginia	25	1	4.00
Washington	10		
West Virginia	6		
Wyoming	1		

Three States (Idaho, Iowa and New York) have attained more than 25 percent of the 1934 Proved-Sire Goal. The next report will be made in July for the first half of 1934. Fifty percent of the goal should be reached by that time. What States will attain 50 percent of their goal by July?

VI

Cull by Test

DAIRY HERD IMPROVEMENT ASSOCIATIONS

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EP 17

Dairy Herd-Improvement Association Letter Vol. 10 No. 5

May 1934

1933 RECORD CASUALTIES

Fourteen States went through the year 1933 without any D.H.I.A. casualties. That is, 14 States sent to the Bureau of Dairy Industry a yearly association summary for each dairy herd-improvement association in operation on January 1, 1933. Sixteen other States sent to this office yearly association summaries for 80 percent or more of their associations.

The following table gives, by States, the number of dairy herd-improvement associations active on January 1, 1933 and the number and percentage of association reports (Form B.D.I. 46) received for tabulation and analysis.

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN OPERATION JANUARY 1, 1933, BY STATES, AND NUMBER OF ASSOCIATIONS FROM WHICH REPORTS WERE RECEIVED FOR TABULATION

State	Number of associations	Association reports received		State	Number of associations	Association reports received	
		Number	Percent			Number	Percent
Ariz.	2	2	100	Wash.	13	11	84.62
Conn.	2	2	100	Mont.	6	5	83.33
Del.	1	1	100	N.J.	16	13	81.25
Ga.	1	1	100	Wis.	78	63	80.77
Idaho	5	5	100	Colo.	15	12	80.00
Ky.	6	6	100	W.Va.	5	4	80.00
La.	6	6	100	Mich.	58	46	79.31
Md.	9	9	100	Mo.	29	23	79.31
Nebr.	20	20	100	N.C.	9	7	77.78
N.H.	9	9	100	Ind.	30	23	76.67
N.Mex.	1	1	100	Tex.	3	2	66.67
R.I.	2	2	100	Mass.	14	9	64.29
S.Dak.	4	4	100	Okla.	15	8	53.33
Utah	1	1	100	Miss.	2	1	50.00
Pa.	86	85	98.84	N.Dak.	7	3	42.86
Iowa	60	59	98.33	Oreg.	14	6	42.86
Ill.	53	52	98.11	Ala.	3	1	33.33
Va.	28	27	96.43	Ark.	1	0	0
Vt.	26	25	96.15	Calif.	60*	0	0
N.Y.	74	71	95.95	Maine	4	0	0
Kans.	17	16	94.12	S.C.	1	0	0
Ohio	31	29	93.55	Wyo.	1	0	0
Tenn.	8	7	87.50	Total	881	716	
Minn.	45	39	86.67	Average			81.27

* Records delayed.

APRIL PROVED-SIRE REPORT

Twenty-one sires were proved in nine States during April (1934) by the lactation method and two sires were re-proved. The following table gives a detailed report of the proved-sire work:

NUMBER OF SIRES PROVED

STATE	During 1932	During 1933	In 1934 to May 1	During April 1934			Number of sires re-proved during April 1934
				Total	Increased butterfat production	Decreased butterfat production	
Calif.....	26	15	7				
Idaho......	10	8	3	1	1		
Ill........	7	25	9				
Iowa......	12	35	21	2	2		
Ky........		1					
Mass......	2						
Mich......	8						
Minn......	7	8	5	1	1		
Miss......	1						
Mo........	1						
Nebr......	1	9	2	1		1	
N.H.......		4	2	2		2	
N.J.......		34	6	3	2	1	
N.Mex.....		2					
N.Y.......	69	109	27	9	4	5	1
N.C.......	2						
Okla......		3					
Pa........		17					
Va........	10	13	2	1		1	1
Vt........			2				
Wash......	2	3					
Wis.......		4	2	1	1		
Total	158	290	88	21	11	10	2

LEADING SIRES PROVED

Records are given for sires proved during the period beginning Mar 1 and ending April 30 whose daughters show greatest gain over their dams when the average production level of the dams was (1) under 300 pounds butterfat, (2) between 300 pounds and 400 pounds butterfat, and (3) over 400 pounds butterfat. The leading sires for the two-month period mated to dams of these classes are as follows:

BUTTERFAT-PRODUCTION CLASS OF DAMS

	Under 300 pounds		300-400 pounds		Over 400 pounds	
State:	Iowa		Vermont		Nebraska	
Breed:	Brown Swiss		Guernsey		Holstein	
	Dams Lb.	Daughters Lb.	Dams Lb.	Daughters Lb.	Dams Lb.	Daughters Lb.
	139	352	394	486	326	628
	139	401	283	355	526	580
	139	361	280	543	345	578
	520	380	244	440	481	596
	247	384	402	393	501	592
			274	617	462	521
			283	402	326	457
			402	533	362	493
					631	552
Average production	237	376	320	471	440	555
Average increase (pounds)	139		151		115	
Average increase (percent)	58.6		47.1		26.2	

NEW BOOKLET ON PROVED-SIRE WORK

The Division of Dairy Herd-Improvement Investigations has issued a new booklet on proved-sire work, B.D.I.M. 623, "Proving Dairy Sires in Dairy Herd-Improvement Associations by the Lactation Records of the Daughters and Their Dams." The booklet is designed to assist dairymen, testers, and county agents in reporting dam-and-daughter records for proving herd sires. State dairy extension specialists and county agents may obtain copies of the booklet to supply members of dairy herd-improvement associations by writing direct to the Bureau of Dairy Industry, U.S. Department of Agriculture, Washington, D. C.

BARN-BOOK COVERS

A limited supply of barn-book covers for Form B.D.I. 2 is now available for distribution. State dairy extension specialists who were unable to obtain barn book covers during the past year to supply their testers should order immediately.

CULLING REPORTS

In order that seasonal culling may be studied, State dairy specialists are asked to report in the future on Form B.D.I.M. 576 the number of cows culled and reasons for culling each month for all dairy herd-improvement associations. The method of making this report is left to the States. In States where the testers send their culling data to the State office the State dairy extension specialist may combine the data and send a monthly report to the Bureau of Dairy Industry. In States where the testers fill out Form B.D.I.M. 576 and mail it direct to this office they should be instructed to make their culling report each month.

NEXT MONTH

"Leaders of 1933" will be featured in next month's Dairy Herd-Improvement Association Letter. Citations will be made of leading dairy herd-improvement associations having highest average milk and butterfat production, leading herds having highest average milk and butterfat production, and leading sires proved by lactation records.

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Dairy Herd-Improvement Association Letter Vol. 10. No. 9

September 1934

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A FEW FACTS GLEANED FROM THE 1933 DAIRY HERD-IMPROVEMENT ASSOCIATION RECORDS

The following table shows what it cost on the average to feed cows on different levels of production and the average cost of feed per pound of butterfat for the various levels of production:

Relation of Butterfat Production Per Cow to Other Factors

	Number of cows in group	Butterfat produced per cow	Cost of roughage per cow (average)	Cost of concentrates per cow (average)	Total feed cost per cow (average)	Total feed cost per lb. b'fat (average)
		pounds	dollars	dollars	dollars	cents
Group 1	1,542	100	24	10	34	34
**	5,946	164	27	14	41	25
Group 2	16,897	200	28	15	43	22
Group 3	37,689	300	30	21	51	17
***	163,014	313	30	22	52	17
Group 4	19,789	400	32	27	59	15
Group 5	4,482	500	34	33	67	14
Group 6	654	600	41	41	82	14

** Figures in this line are for DHIA cows whose average butterfat was the same as the average for all cows milked in the U. S. in 1933.

*** Figures in this line are the average for all DHIA cows on test in 1933.

The figures in the foregoing table are based on the actual records of a large number of cows on test in dairy herd-improvement associations in all parts of the country in 1933. They represent what actually occurred in these association herds, under the existing conditions of feed prices and feeding practices.

Because of the large number of cows and the wide range of conditions involved in this tabulation, the differences in level of production between the groups is due to differences in inherent producing capacity of the cows in the respective groups, rather than to any differences in feeding. The data do not reflect any economies that might conceivably be made by feeding for higher or lower levels of production within a group.

The tabulation shows that the average feed cost per cow advanced with each increase in level of producing capacity, and that the feed cost of a pound of butterfat decreased with each increase in level of producing capaci On the average it cost $34 a year to feed the cows in the first, or lowest-producing group, and more than twice as much, or an average of $83 a year, feed the cows in the sixth, or highest-producing group. It will be noted, however, that the highest-producing group produced butterfat at a feed cost of 14 cents a pound, whereas the lowest-producing group produced butterfat a a feed cost of 34 cents a pound. In other words, the higher the inherent pr ducing capacity of the cow the greater her efficiency in utilizing feed for production purposes.

Cows in dairy herd-improvement associations that had an average production of 164 pounds of butterfat a year, which is the same as the average production for all cows milked in the United States last year, produced butterfat at a feed cost of 25 cents a pound. The average dairy herd-improvement association cow produced 313 pounds of butterfat at a feed cost of 17 cents a pound.

If a factory manager found that one type of machine was more efficien than another, and that the more efficient machine required only 17 cents wor of fuel to produce an article as compared to 25 cents worth required by the less efficient machine, he would probably discard the less efficient machine and install the one that uses less fuel per unit of production. Such a chang would mean a gain of 8 cents additional profit on every article produced.

The average dairyman of the United States needs to follow the same pro cedure as the factory manager. If the machine he is using required 25 cents worth of "fuel" per pound of butterfat produced, he would find it advantageou to install machines that require only 17 cents worth of fuel per unit of production. Thousands of dairymen throughout the United States have made this profitable change by joining a dairy herd-improvement association. Thousands more should do it. Membership in a dairy herd-improvement association would not only enable the dairyman to locate and discard the inefficient cows, but would provide information which would be helpful in breeding more efficient cows and in feeding them in the most economical way.

The Dairy Herd-Improvement Association way is the surest and most economical way to more profitable dairying.

LEADING SIRES PROVED IN AUGUST

Dam-and-daughter comparisons are given below for the leading sire proved during August, in each of three following classes: When the average butterfat production of the dams was (1) over 400 pounds, (2) between 400 and 300 pounds, and (3) under 300 pounds.

	Class 1 Dams over 400 pounds		Class 2 Dams between 400 and 300 pounds		Class 3 Dams under 300 pounds	
Leading sire: Breed--- State---	Holstein Iowa		Jersey Vermont		Holstein California	
	Dams	Daughters	Dams	Daughters	Dams	Daughters
Butterfat production records of dams and daughters, pounds------	506	644	453	320	263	524
	459	604	482	411	263	374
	484	752	397	495	263	368
	553	581	413	433	263	378
	625	667	375	516	329	512
	477	632	253	526	356	461
	543	593				
	543	663				
	810	841				
	986	784				
	402	766				
	402	642				
	480	892				
Average------	559	697	396	450	290	436
Increase:						
Pounds-----		138		54		146
Percent---		24.6		13.8		50.7

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Dairy Herd-Improvement Association Letter Vol. 10 No. 10

October 1934

IMPROVING AVERAGE PRODUCTION OF DAIRY HERDS THROUGH BREEDING IS CHIEF OBJECTIVE OF ALL D.H.I.A. WORK

Some immediate and temporary improvement in the average production of a dairy herd can be made by culling out low-producing cows and some improvement in the efficiency of the herd can be made by feeding the remaining cows more intelligently, but permanent improvement in the average producing capacity of dairy cows can come only through the use of a breeding program which eliminates the hereditary factors that cause low production and substitutes the factors for higher production. The surest way to develop a herd that will have an inheritance for a high level of production is through the exclusive use of meritorious proved sires. The chief objective of all D.H.I.A. work should be to provide information, through testing and record-keeping, which will make it possible to locate and use outstanding sires.

Bull Associations

Bull associations provide a means whereby many dairymen can establish a long-time, low-cost breeding program. Through membership in such associations a dairyman may obtain the services of outstanding sires with a minimum outlay of cash. By the systematic exchange of bulls every 2 years, a member of a bull association may carry on a breeding program for a period of several years with only one investment for a herd sire. Such associations enable the owners of small herds as well as owners of large herds to follow a sound, progressive breeding program. Bull associations should exist in every dairy section of the United States. On January 1, 1934 there were only 351 bull associations in active operation. MANY MORE BULL ASSOCIATIONS NEED TO BE ORGANIZED.

Bull Association Catechism

Complete details on the organization and operation of bull associations are given in B.D.I.M. 530, "Bull Association Catechism." A copy of this publication should be in the hands of every dairy herd-improvement association member. Copies may be obtained from the Bureau of Dairy Industry, U.S. Department of Agriculture, Washington, D.C.

Scrub-Sire Trial

Many extension workers and cow testers have held scrub-sire trials to "pep up" annual meetings of dairy herd-improvement associations. Such a trial is not only entertaining, but it drives home the importance of good sires.

An "Outline for Conducting a Scrub-Sire Trial" may be obtained from the Bureau of Dairy Industry, U. S. Department of Agriculture, Washington, D.C.

220 Proved Sires

During the first 9 months of 1934, 220 sires were proved in dairy herd-improvement associations by comparing the lactation records of 1,737 of the daughters with the lactation records of their dams. Iowa, with 50 proved sires, leads the list in total number of sires proved. New York is second with 47 proved sires. A detailed statement of the results of proved-sire work during the first 9 months of the year is given on the following page.

HOW MANY SIRES CAN BE PROVED ANNUALLY IN A D.H.I.A?

James C. Hoyt, tester of the Tazewell County #2 D.H.I.A. of Illinois has reported data to prove nine sires in this association during the first 9 months of 1934.

STATUS OF PROVED-SIRE WORK FOR THE FIRST 9 MONTHS OF 1934 IN THE STATES PROVING SIRES WITH LACTATION RECORDS

State	Number of associations active on Jan.1,1934	Number of sires proved in the first 9 months of 1934	Percentage of 1934 goal attained
Alabama	2		
*Arizona	2		
Arkansas	0		
California	52	17	32.69
Colorado	11	1	9.09
Connecticut	2		
Delaware	1		
Florida	0		
Georgia	0		
Idaho	4	3	75.00
Illinois	52	28	53.85
Indiana	30		
Iowa	53	50	94.34
Kansas	14	2	14.29
Kentucky	6	2	33.33
Louisiana	5		
Maryland	11		
Maine	3		
Massachusetts	11		
Michigan	51	5	9.80
Minnesota	36	10	27.78
Mississippi	1		
Missouri	24		
Montana	4	1	25.00
Nebraska	17	8	47.06
Nevada	0		
New Hampshire	9	9	100.00
New Jersey	17	12	70.59
New Mexico	1		
New York	69	47	68.12
North Carolina	7		
North Dakota	5		
*Ohio	30		
Oklahoma	15		
Oregon	10		
*Pennsylvania	83		
Rhode Island	3		
South Carolina	1		
*South Dakota	4		
Tennessee	5		
Texas	2	3	150.00
Utah	1		
Vermont	27	10	37.04
Virginia	25	10	40.00
Washington	10		
West Virginia	6		
*Wisconsin	69	2	2.90
Wyoming	1		
Total	793	220	27.74

*Arizona, Ohio, Pennsylvania, South Dakota and Wisconsin prove sires with 12-month records.

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Dairy Herd-Improvement Association Letter Vol. 10 No. 11

November 1934

LIVING PROVED SIRES

Living dairy sires are being proved in dairy herd-improvement associations in the United States at the rate of approximately 5 each week. Nearly half of the proved sires whose records are tabulated by the Division of Dairy Herd Improvement Investigations are in active service at the time they are proved. A study of the records reveals that 42.4 percent of the 694 sires proved with lactation records were still living at the time they were proved, and only 17.9 percent of the 2,660 sires proved with 12-month records were living when proved. While this difference in percentage of living sires is due, largely, to the type of record, it is also due to the method in which the records were handled. Lactation records lend themselves to early reporting and more rapid handling and tabulation.

PROVED-SIRE RECORDS RETURNED PROMPTLY

A proved-sire record, to be of greatest value to the dairy industry, must be available early in the life of the sire. As soon as 5 dam-and-daughter comparisons are available for a sire the tester should record the data on a sire-record blank, Form BDIM 622, and mail it to the State dairy specialist who in turn forwards it to Washington, D. C., for tabulation. Special effort is being made to tabulate proved-sire records and return them to the States promptly. Completely tabulated proved-sire records are frequently mailed the same day the dam-and-daughter records are received. Usually they are returned within 5 or 6 days. Seldom do the records remain in Washington more than a week. Thus a tabulated proved-sire record can be returned to the dairyman within 2 or 3 weeks after the data leave the farm. Prompt mailing is necessary if delay is to be avoided.

A great number of the sire-record blanks received for tabulation are not completely filled out. These blanks must be returned to the State for additional information, thereby delaying the tabulation. Testers should fill out the sire-record blank in detail.

BEST TYPE OF LACTATION RECORD

What type of lactation record is best suited for proving dairy sires? Is the 365-day lactation record now being used in proving dairy sires the best? These questions have long been before the dairy leaders of the country. Several States have made exhaustive studies on 'type of record'. In cooperation with the Dairy Department of the Pennsylvania State College, the Division of Dairy Herd Improvement Investigations is delving further into the subject in search for additional information. As the matter is of great importance to the proved-sire program, the Bureau of Dairy Industry would appreciate receiving reports of studies made on the subject in the various States.

HERD AND ASSOCIATION SUMMARIES

The time required to tabulate and summarize herd and association reports is being reduced. Few association reports remain in Washington longer than 5 or 6 weeks. It is hoped that reports may soon be tabulated within 3 or possibly 4 weeks. The States can assist materially in the realization of this goal by promptly submitting complete association reports. Frequently records for only a few herds in an association are reported or accounted for, necessitating inquiry as to the whereabouts of the missing records. All this takes time and delays summarization.

Association reports should include the records of all the herds ending their testing year during the calendar year. If complete reports are sent in the summarized records can be returned to the States promptly.

INCREASED INTEREST IN D.H.I.A. WORK

States in every section of the country are reporting increased interest in dairy herd-improvement association work. New associations are being organized and membership in old associations is increasing.

These encouraging reports are substantiated by an increase in the quantity of supplies being requested by State dairy specialists for use in dairy herd-improvement association work during the calendar year 1935.

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IMPROVEMENT
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HERD BOOK
TEST THE COWS PROVE THE BULLS

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Dairy Herd-Improvement Association Letter Vol. 10, No. 12

December 1934

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ESTIMATING THE WEIGHTS OF DAIRY COWS

A dairy herd-improvement association record, in order to be complete, must include the weight of the cow at the beginning of the testing year. Usually the tester and herd owner will estimate this figure. While data obtained in this manner do give some indication as to the relative weights of cows on test, the estimates are frequently so inaccurate they have little value. Actual weights of dairy cows are usually difficult to obtain as relatively few dairy farms are equipped with stock scales.

Testers and members of dairy herd-improvement associations can obtain reliable estimates of the weights of individual dairy cows by a simple method of measuring the heart-girth. The principle involved in this method of estimating weights is that the heart-girth of a cow varies in proportion to her weight. Dairymen in Denmark have long used the heart-girth measurement for estimating the weights of their dairy cows. For a great many years this method has also been followed in America, using, for the most part, data compiled in Denmark. However, the Danish data have a tendency to over-estimate the weight of American dairy cattle as much as 90 pounds. This is due, largely, to the difference in conformation of Danish and American cattle.

In order to have data applicable to American dairy cattle a study was made of 1,721 sets of actual weights and heart-girth measurements of registered Holstein and Jersey cattle varying in age, size, and condition. The data were obtained at the Bureau of Dairy Industry Experiment Station, Beltsville, Maryland. From this study the table on the following page was calculated to show estimated weights of dairy cows with heart-girth measurements varying from 50 to 92 inches. While these data are based on measurements of Holstein and Jersey cattle they can be used with equal satisfaction to estimate weights of cows of other dairy breeds. By using any accurate tape-measure and these data it is possible to estimate with considerable accuracy the weights of individual dairy cows. The measuring tape should be placed around the animal directly back of the front legs. A cow with a heart-girth measurement of 69 inches should have, according to the following table, an actual weight of approximately 947 pounds and a cow with a heart-girth measurement of 75 inches, an actual weight of approximately 1,197 pounds.

Heart-girth Inches	Weight Pounds	Heart-girth Inches	Weight Pounds	Heart-girth Inches	Weight Pounds
50	394	64	766	78	1,331
50½	404	64½	783	78½	1,354
51	414	65	800	79	1,377
51½	424	65½	817	79½	1,400
52	434	66	835	80	1,423
52½	445	66½	853	80½	1,446
53	456	67	871	81	1,469
53½	467	67½	889	81½	1,492
54	478	68	908	82	1,515
54½	489	68½	927	82½	1,538
55	501	69	947	83	1,561
55½	513	69½	967	83½	1,584
56	526	70	987	84	1,607
56½	539	70½	1,007	84½	1,630
57	552	71	1,027	85	1,653
57½	565	71½	1,048	85½	1,676
58	579	72	1,069	86	1,699
58½	593	72½	1,090	86½	1,722
59	607	73	1,111	87	1,745
59½	622	73½	1,132	87½	1,768
60	637	74	1,153	88	1,791
60½	652	74½	1,175	88½	1,814
61	668	75	1,197	89	1,837
61½	684	75½	1,219	89½	1,860
62	700	76	1,241	90	1,883
62½	716	76½	1,263	90½	1,906
63	732	77	1,285	91	1,929
63½	749	77½	1,308	91½	1,952
				92	1,975

UNI

IMPROVEMENT
DAIRY HERD ASSOCIATIONS
HERD BOOK
TEST THE COWS PROVE THE BULLS
BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 11 No. 2

February 1935

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1935

(as reported by State dairy extension specialists)

For the first time in five years dairy herd-improvement association work has shown an increase in the number of associations and in the number of cows on test.

Eight hundred and nine dairy herd-improvement associations were in operation in the United States on January 1, 1935, with 364,218 cows on test. This was an increase of 16, or 2 percent in the number of associations and an increase of 38,381 or 10.5 percent in the number of cows on test as compared to the number on January 1, 1934, when there were 793 associations with 325,837 cows on test. Dairy specialists in every section of the country report increased interest in association work.

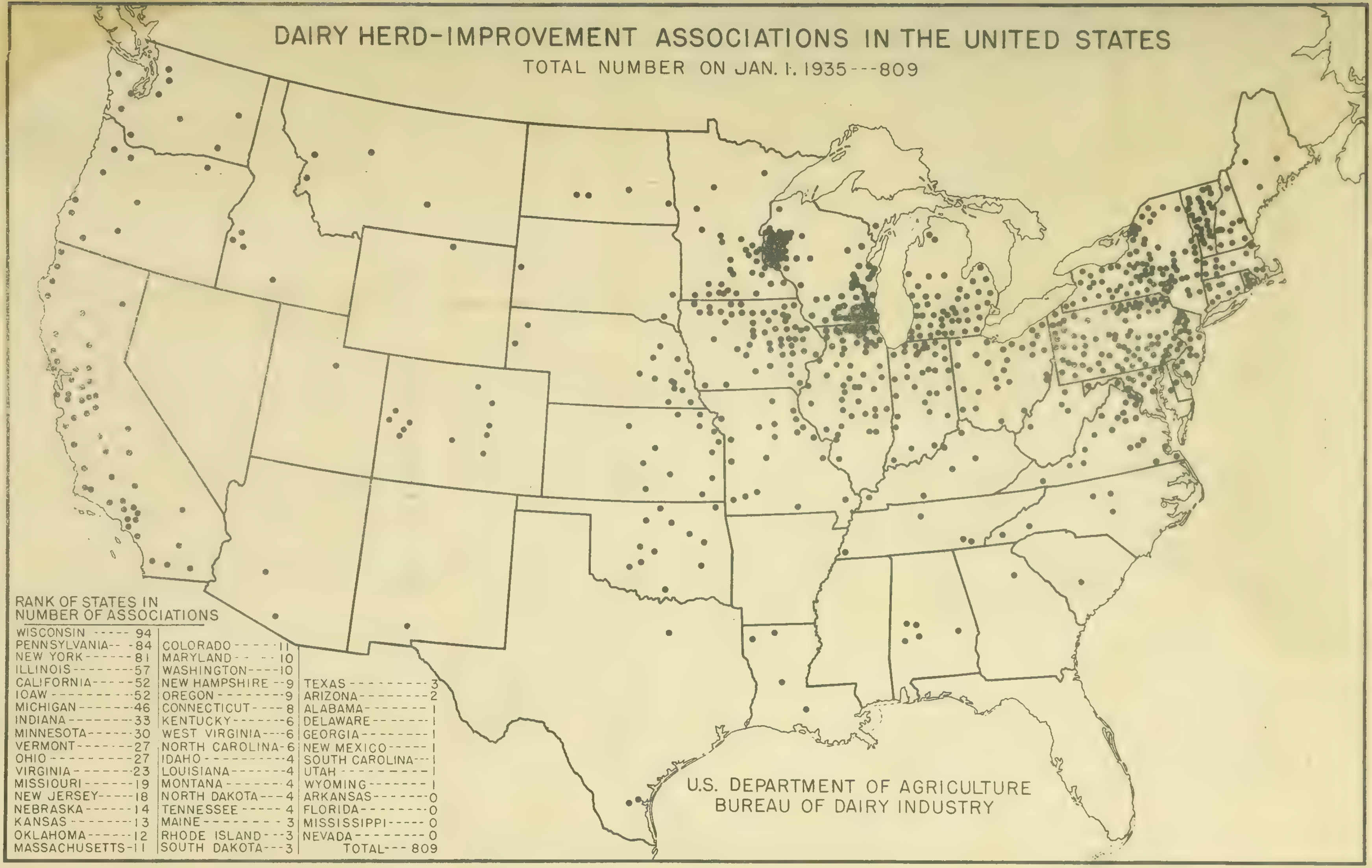
Although only 8 States gained in number of associations, 19 gained in number of herds on test.

Data on the status of dairy herd-improvement association work are given on the following pages.

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1935

State	Number of associations	Number of herds	Number of cows	Average per association Herds	Average per association Cows	Total dairy cows in 1/ U. S.	Percentage of all dairy cow in D.H.I.A.'S
Alabama	1	15	1,334	15.0	1,334	434,000	.3
Arizona	2	28	1,040	14.0	520	44,000	2.4
Arkansas	0	0	0	0	0	463,000	0
California	52	991	61,813	19.0	1,189	631,000	9.8
Colorado	11	65	2,012	5.9	183	264,000	.8
Connecticut	8	203	5,287	25.4	661	115,000	4.6
Delaware	1	19	427	19.0	427	36,000	1.2
Florida	0	0	0	0	0	103,000	0
Georgia	1	9	344	9.0	344	382,000	.1
Idaho	4	75	1,260	18.8	315	196,000	.6
Illinois	57	1,087	21,103	19.1	370	1,178,000	1.8
Indiana	33	593	10,839	18.0	328	795,000	1.4
Iowa	52	1,066	18,991	20.5	365	1,545,000	1.2
Kansas	13	162	3,314	12.5	255	855,000	.4
Kentucky	6	106	2,340	17.7	390	554,000	.4
Louisiana	4	62	1,991	15.5	498	297,000	.7
Maryland	10	147	4,142	14.7	414	192,000	2.2
Maine	3	62	995	20.7	332	147,000	.7
Massachusetts	11	254	6,420	23.1	584	136,000	4.7
Michigan	46	747	11,369	16.2	247	893,000	1.3
Minnesota	30	492	9,331	16.4	331	1,734,000	.5
Mississippi	0	0	0	0	0	558,000	0
Missouri	19	165	4,496	8.7	237	922,000	.5
Montana	4	27	849	6.8	212	194,000	.4
Nebraska	14	201	3,560	14.4	254	712,000	.5
Nevada	0	0	0	0	0	21,000	0
New Hampshire	9	220	4,785	24.4	532	82,000	5.8
New Jersey	18	332	9,704	18.4	539	133,000	7.3
New Mexico	1	1	225	1.0	225	65,000	.3
New York	81	1,735	40,528	21.4	500	1,359,000	3.0
North Carolina	6	81	2,936	13.5	489	343,000	.9
North Dakota	4	34	847	8.5	212	596,000	.1
Ohio	27	534	8,350	19.8	309	985,000	.8
Oklahoma	12	106	2,521	8.8	210	733,000	.3
Oregon	9	229	6,020	25.4	669	270,000	2.2
Pennsylvania	84	1,603	30,864	19.1	367	931,000	3.3
Rhode Island	3	66	1,845	22.0	615	21,000	8.8
South Carolina	1	12	425	12.0	425	156,000	.3
South Dakota	3	32	820	10.7	273	587,000	.1
Tennessee	4	43	919	10.8	230	521,000	.2
Texas	3	50	905	16.7	302	1,388,000	.1
Utah	1	32	465	32.0	465	104,000	.4
Vermont	27	575	12,944	21.3	479	276,000	4.7
Virginia	23	337	11,554	14.7	502	398,000	2.9
Washington	10	184	5,463	18.4	546	324,000	1.7
West Virginia	6	55	1,073	9.2	179	239,000	.4
Wisconsin	94	2,726	47,571	29.0	506	2,124,000	2.2
Wyoming	1	10	197	10.0	197	64,000	.3
Total	809	15,573	364,218			25,100,000	
Average				19.2	450		1.45

1/ Estimates of the Bureau of Agricultural Economics



DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER ON JAN. 1. 1935---809

RANK OF STATES IN NUMBER OF ASSOCIATIONS

WISCONSIN	94
PENNSYLVANIA	84
NEW YORK	81
ILLINOIS	57
CALIFORNIA	52
IOAW	52
MICHIGAN	46
INDIANA	33
MINNESOTA	30
VERMONT	27
OHIO	27
VIRGINIA	23
MISSIOURI	19
NEW JERSEY	18
NEBRASKA	14
KANSAS	13
OKLAHOMA	12
MASSACHUSETTS	11
COLORADO	11
MARYLAND	10
WASHINGTON	10
NEW HAMPSHIRE	9
OREGON	9
CONNECTICUT	8
KENTUCKY	6
WEST VIRGINIA	6
NORTH CAROLINA	6
IDAHO	4
LOUISIANA	4
MONTANA	4
NORTH DAKOTA	4
TENNESSEE	4
MAINE	3
RHODE ISLAND	3
SOUTH DAKOTA	3
TEXAS	3
ARIZONA	2
ALABAMA	1
DELAWARE	1
GEORGIA	1
NEW MEXICO	1
SOUTH CAROLINA	1
UTAH	1
WYOMING	1
ARKANSAS	0
FLORIDA	0
MISSISSIPPI	0
NEVADA	0
TOTAL	809

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

RANK OF THE TEN HIGH STATES IN DAIRY HERD-IMPROVEMENT ASSOCIATION WORK

(January 1, 1934 - January 1, 1935)

Largest number of associations		Largest number of cows in associations	
1934	1935	1934	1935
1. Pennsylvania	1. Wisconsin	1. California	1. California
2. Wisconsin) tie	2. Pennsylvania	2. New York	2. Wisconsin
3. New York)	3. New York	3. Wisconsin	3. New York
4. Iowa	4. Illinois	4. Pennsylvania	4. Pennsylvania
5. California) tie	5. California) tie	5. Iowa	5. Illinois
6. Illinois)	6. Iowa)	6. Illinois	6. Iowa
7. Michigan	7. Michigan	7. Michigan	7. Vermont
8. Minnesota	8. Indiana	8. Virginia	8. Virginia
9. Indiana) tie	9. Minnesota	9. Vermont	9. Michigan
10. Ohio)	10. Ohio) tie	10. Minnesota	10. Indiana
	11. Vermont)		

RELATIVE POSITIONS OF THE TEN HIGH STATES IN TOTAL NUMBER OF MEMBERS OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS

(January 1, 1933 - January 1, 1935)

State	Number of members	State	Number of members	State	Numbe of membe
1933		1934		1935	
1. Wisconsin	1,643	1. Wisconsin	1,466	1. Wisconsin	2,726
2. Pennsylvania	1,591	2. Pennsylvania	1,455	2. New York	1,735
3. New York	1,360	3. New York	1,313	3. Pennsylvania	1,603
4. Iowa	1,143	4. Iowa	1,078	4. Illinois	1,08
5. California	1,073	5. California	994	5. Iowa	1,060
6. Illinois	1,007	6. Illinois	971	6. California	991
7. Michigan	945	7. Michigan	812	7. Michigan	747
8. Ohio	704	8. Indiana	557	8. Indiana	593
9. Minnesota	674	9. Minnesota	546	9. Ohio	534
10. Indiana	564	10. Ohio	514	10. Minnesota	492

RELATIVE POSITIONS OF THE TEN HIGH STATES IN PERCENTAGE OF ALL COWS ON TEST IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

(January 1, 1933 - January 1, 1935)

State	Percentage of cows on test	State	Percentage of cows on test	State	Percentage of cows on test
1933		1934		1935	
1. California	9.5	1. Rhode Island	10.3	1. California	9.8
2. New Jersey	7.0	2. California	9.4	2. Rhode Island	8.8
3. Rhode Island	6.4	3. New Jersey	7.2	3. New Jersey	7.3
4. New Hampshire	5.4	4. New Hampshire	5.8	4. New Hampshire	5.8
5. Massachusetts	5.0	5. Massachusetts	4.5	5. Massachusetts	4.7) tie
6. Vermont	3.8	6. Vermont	3.7	6. Vermont	4.7)
7. Pennsylvania	3.2)	7. Pennsylvania	3.0	7. Connecticut	4.6
8. Virginia	3.2) tie	8. Virginia	2.8	8. Pennsylvania	3.3
9. Oregon	2.5	9. Arizona	2.2)	9. New York	3.0
10. New York	2.3)	10. New York	2.2) tie	10. Virginia	2.9
11. Washington	2.3) tie				

TESTING CIRCLES ACTIVE JANUARY 1, 1935

State	Number of circles	Number of herds	Number of cows	Average per circle Herds	Average per circle Cows
Arizona	1	22	1,420	22.0	1,420
*California	1	5	69	5.0	69
Idaho	1	30	325	30.0	325
Massachusetts	1	10	310	10.0	310
Minnesota	1	37	315	37.0	315
Montana	3	73	900	24.3	300
New Jersey	3	71	1,230	23.7	410
Ohio	2	16	160	8.0	80
Pennsylvania	2	109	1,509	54.5	754
Texas	1	2	20	2.0	20
Washington	12	587	5,801	48.9	483
Total	28	962	12,059		
Average				34.4	431

*Mail testing

NUMBER OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS, BY STATES, 1906-1935 INCLUSIVE

Up to and including 1923 data were collected on July 1. Beginning with 1924, reports were made by calendar years. Since 1925 data are of January 1.

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Mich.1/.	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53	105	108	102	105	94	90	88	69	58	51	46
Maine	3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4	2	1	0	0	0	5	5	5	4	3	3
N.Y.	1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27	24	28	36	42	54	51	69	79	74	69	81
Vt.		2	8	10	11	17	28	33	38	47	18	12	18	17	21	20	17	23	23	25	23	23	28	29	26	27	27
Iowa		2	5	4	8	7	8	13	23	30	15	11	14	17	22	47	56	61	77	86	101	[illegible]	100	82	60	53	52
Calif.		1	3	2	4	4	5	7	8	15	16	14	18	21	21	27	20	30	35	32	32	33	31	62	60	52	52
Wis.		9	10	10	8	11	24	37	51	81	112	105	115	103	127	151	176	169	159	166	154	[illegible]	[illegible]	96	73	69	94
Nebr.		1	0	0	0	3	2	3	4	4	2	2	0	0	1	4	2	6	10	17	23	[illegible]	[illegible]	26	20	17	14
Colo.			1	1	2	1	1	0	0	3	5	5	5	4	6	6	7	6	5	9	14	15	15	15	15	11	11
Pa.			1	1	2	2	7	14	19	24	21	35	64	46	45	36	42	43	49	65	76	[illegible]	88	85	86	83	84
Ohio			1	0	0	1	4	5	20	30	24	24	41	35	36	36	21	25	28	29	39	35	37	36	31	[illegible]	27
Wash.			1	3	1	0	0	1	12	18	11	9	6	10	10	11	10	8	11	10	12	15	12	15	13	10	10
Md.				1	3	3	2	4	7	8	4	2	6	7	6	4	9	10	8	7	8	9	13	11	9	11	10
Ill.				4	3	2	7	3	3	17	15	27	23	25	24	23	24	26	30	34	51	59	62	57	53	52	57
Minn.				3	7	10	9	11	22	26	23	21	19	23	37	55	38	84	85	105	117	120	96	69	45	36	30
N.H.				1	1	1	4	8	11	12	8	9	10	10	12	10	5	4	2	4	7	7	8	9	9	9	9
Ore.				1	1	1	7	11	15	17	11	6	9	5	5	4	7	8	9	11	14	14	16	16	14	10	9
Utah				1	0	0	1	1	0	1	1	0	1	1	1	4	5	4	5	5	5	8	6	7	1	1	1
Mass.				2	2	2	3	0	4	4	0	0	1	5	6	6	3	6	7	9	11	11	13	13	14	11	11
Va.				2	2	2	0	0	2	4	4	5	8	10	12	13	15	18	18	20	20	20	20	25	23	25	23
Kans.						1	1	1	1	4	3	15	13	13	13	9	8	11	13	14	20	22	25	18	17	14	15
Ind.						2	2	3	7	9	7	10	5	10	5	10	17	25	31	34	41	51	37	32	30	30	33
Ky.						1	1	0	1	1	0	0	5	5	2	3	2	0	2	*	8	12	12	8	6	6	6
Mo.							2	1	2	5	4	5	6	7	11	12	13	19	21	25	34	36	34	28	29	24	19

Number of Dairy Herd-Improvement Associations, By States, 1906-1935 Inclusive (continued)

	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
N. J.							2	3	4	8	9	9	12	8	6	6	6	9	11	17	18	16	15	17	16	17	18
W. Va.							1	1	3	1	1	1	3	5	5	6	3	3	3	4	6	7	9	6	5	6	6
Conn.							1	3	6	3	0	0	1	0	2	1	1	2	4	5	3	4	4	2	2	2	8
N. C.							2	0	0	0	0	0	2	2	0	0	2	5	5	5	8	7	7	8	9	7	6
La.							1	0	0	0	0	0	1	0	0	0	0	0	1	2	2	2	3	2	6	5	4
S. Dak.							1	1	3	3	0	0	0	0	0	4	11	9	10	8	14	12	12	7	4	4	3
Nevada								1	0	1	0	0	0	1	1	4	3	1	3	0	1	0	0	0	0	0	0
Ariz.									2	2	1	0	0	2	1	1	2	1	1	2	3	4	3	2	2	2	2
R. I.									2	2	0	0	4	4	4	3	0	0	0	0	1	1	1	2	2	3	3
Del.									2	3	2	2	1	0	0	0	0	0	0	0	1	1	1	1	1	1	1
Idaho									2	1	1	4	5	6	4	8	8	8	9	12	13	13	12	10	5	4	4
Miss.									1	0	0	0	0	3	2	1	1	2	0	1	1	2	3	3	2	1	0
Mont.									1	2	0	0	0	0	0	2	4	3	7	7	8	9	9	8	6	4	4
Tenn.									1	8	4	6	3	3	4	2	2	2	2	3	7	10	10	8	8	6	4
N. Mex										1	0	0	0	1	1	1	0	1	1	2	2	1	1	1	1	1	1
Wyo.										1	0	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1
Ala.											2	1	3	1	1	0	0	0	1	3	4	7	6	4	3	2	1
Ga.											1	0	0	0	0	0	0	0	1	1	2	1	0	1	1	0	1
N. Dak.											1	1	1	2	6	8	5	3	6	4	7	9	9	5	7	5	4
Okla.												1	1	2	1	3	5	5	5	12	22	25	21	20	15	15	12
S. C.												1	1	1	0	0	0	0	0	0	1	3	2	0	1	1	1
Tex.												3	0	0	0	0	0	0	1	3	6	7	5	5	3	2	3
Ark.													1	2	2	2	0	0	0	2	*	1	3	*	1	0	0
Fla.																					1	2	0	0	0	0	0
Total	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627	732	777	837	947	1090	1143	1110	1005	851	793	809

*No report

1/ Michigan - 1 association in 1906, 4 in 1907

GROWTH OF DAIRY HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES

(1906 - 1935 Inclusive)

Year	No. of ass'ns.	No. of cows on test	Ave. b'fat. prod. of cows on test (pounds)
1906	1	239	215
1907	4	1,606	220
1908	6	3,921	-
1909	25	11,686	-
1910	40	25,000 1/	-
1911	64	40,000 1/	-
1912	82	43,000 1/	-
1913	100	47,150	-
1914	163	73,280	-
1915	211	105,526	-
1916	346	150,677	-
1917	459	216,831	-
1918	353	172,518	-
1919	385	167,313	-
1920	468	203,472	247
1921	452	193,928	-
1922	513	215,321	-
1923	627	277,010	-
2/1924			
1925	732	307,073	284
1926	777	327,653	289
1927	837	362,014	293
1928	947	414,891	296
1929	1,090	465,804	298
1930	1,143	507,549	303
1931	1,112	510,714	306
1932	1,005	427,044	310
1933	881	358,501	313
1934	793	325,837	-
1935	809	364,218	-

1/ Estimated.

2/ Date for collecting data changed in 1924 from July 1 to January 1.

NUMBER OF HERDS ON TEST JANUARY 1, 1934, COMPARED TO THE NUMBER ON TEST JANUARY 1, 1935, BY STATES

State	Herds on Test		Herds on test Jan.1,1935 in percentage of herds on test Jan. 1, 1934	Increase (+) or decrease (-) in number of herds on test
	Jan.1, 1934	Jan.1,1935		
Georgia	0	9	-	+ 9
Connecticut	48	203	422.9	+ 155
Wisconsin	1,466	2,726	185.9	+1,260
West Virginia	41	55	134.1	+ 14
South Carolina	9	12	133.3	+ 3
New York	1,313	1,735	132.1	+ 422
Idaho	57	75	131.6	+ 18
Washington	144	184	127.8	+ 40
Vermont	476	575	120.8	+ 99
Texas	42	50	119.0	+ 8
Delaware	16	19	118.8	+ 3
North Dakota	29	34	117.2	+ 5
Illinois	971	1,087	111.9	+ 116
Pennsylvania	1,455	1,603	110.2	+ 148
Arizona	26	28	107.7	+ 2
Indiana	557	593	106.5	+ 36
New Jersey	318	332	104.4	+ 14
Ohio	514	534	103.9	+ 20
New Hampshire	215	220	102.3	+ 5
Nebraska	201	201	100.0	0
New Mexico	1	1	100.0	0
Virginia	337	337	100.0	0
California	994	991	99.7	- 3
Iowa	1,078	1,066	98.9	-12
Massachusetts	257	254	98.8	- 3
North Carolina	82	81	98.8	- 1
Maine	64	62	96.9	- 2
Rhode Island	69	66	95.7	- 3
Oregon	243	229	94.2	-14
Michigan	812	747	92.0	-65
Wyoming	11	10	90.9	- 1
Minnesota	546	492	90.1	-54
South Dakota	36	32	88.9	- 4
Utah	37	32	86.5	- 5
Maryland	172	147	85.5	-25
Kentucky	125	106	84.8	-19
Alabama	18	15	83.3	- 3
Montana	33	27	81.8	- 6
Colorado	80	65	81.2	-15
Louisiana	78	62	79.5	-16
Missouri	226	165	73.0	-61
Kansas	226	162	71.7	-64
Tennessee	66	43	65.2	-23
Oklahoma	190	106	55.8	-84
Mississippi	15	0	-	-15
Arkansas	0	0	-	-
Florida	0	0	-	-
Nevada	0	0	-	-
Total	13,694	15,573		+1,879
Average			113.7	

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ARIZONA........C.F.Rowe, Ext. Service, College of Agri., Tucson.
ARKANSAS.......C.O.Jacobson, Ext. Service, College of Agri.,Fayetteville.
CALIFORNIA.....G.E.Gordon, Ext. Service, College of Agri., Berkeley.
COLORADO.......C.A.Smith, c/o State Dairy Commissioner, Fort Collins.

CONNECTICUT...A.I.Mann, Ext. Service, Connecticut Agri. College, Storrs.
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UN I

IMPROVEMENT
DAIRY HERD — HERD BOOK — ASSOCIATIONS
TEST THE COWS — PROVE THE BULLS

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter
Vol. 11, No. 5
March 1935

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COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1935

(as reported by State dairy extension specialists)

Three hundred cooperative dairy bull associations were in operation January 1, 1935 as compared to 351 associations active January 1, 1934. The associations now active have a total membership of 4,966 dairymen owning cooperatively 1,259 registered dairy bulls.

Six States had more cooperative dairy bull associations in operation on January 1, 1935 than a year earlier. Eleven States had the same number of associations as a year earlier, and seven States had fewer associations. New York showed the greatest gain in number of bull associations, increasing the number from 6 to 18 during the year.

The Influence of a Sire Lives

Few dairymen would purchase a new model automobile until after it had been put through grueling road tests by the manufacturer, yet many dairymen place bulls on which they have very little information at the head of their herds.

When the owner of a poor car "junks" it, the car is gone and gone completely. Not so with a poor dairy bull that is discarded. The influence of a dairy bull, either good or bad, lives on for several generations. The influence of a poor bull may remain to harrass and lose money for the dairymen and the dairy industry for many years.

The cooperative bull associations enable dairymen, especially those with small herds, to use tested bulls. By the systematic exchange of bulls every two years; bull association members, with only one investment, are able to use bulls which have demonstrated their ability to increase the productive capacity of the daughters over their dams.

A cooperative bull association will appeal to dairymen who want to adopt a low-cost, long-time, herd-improvement program by using tested bulls.

COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1935

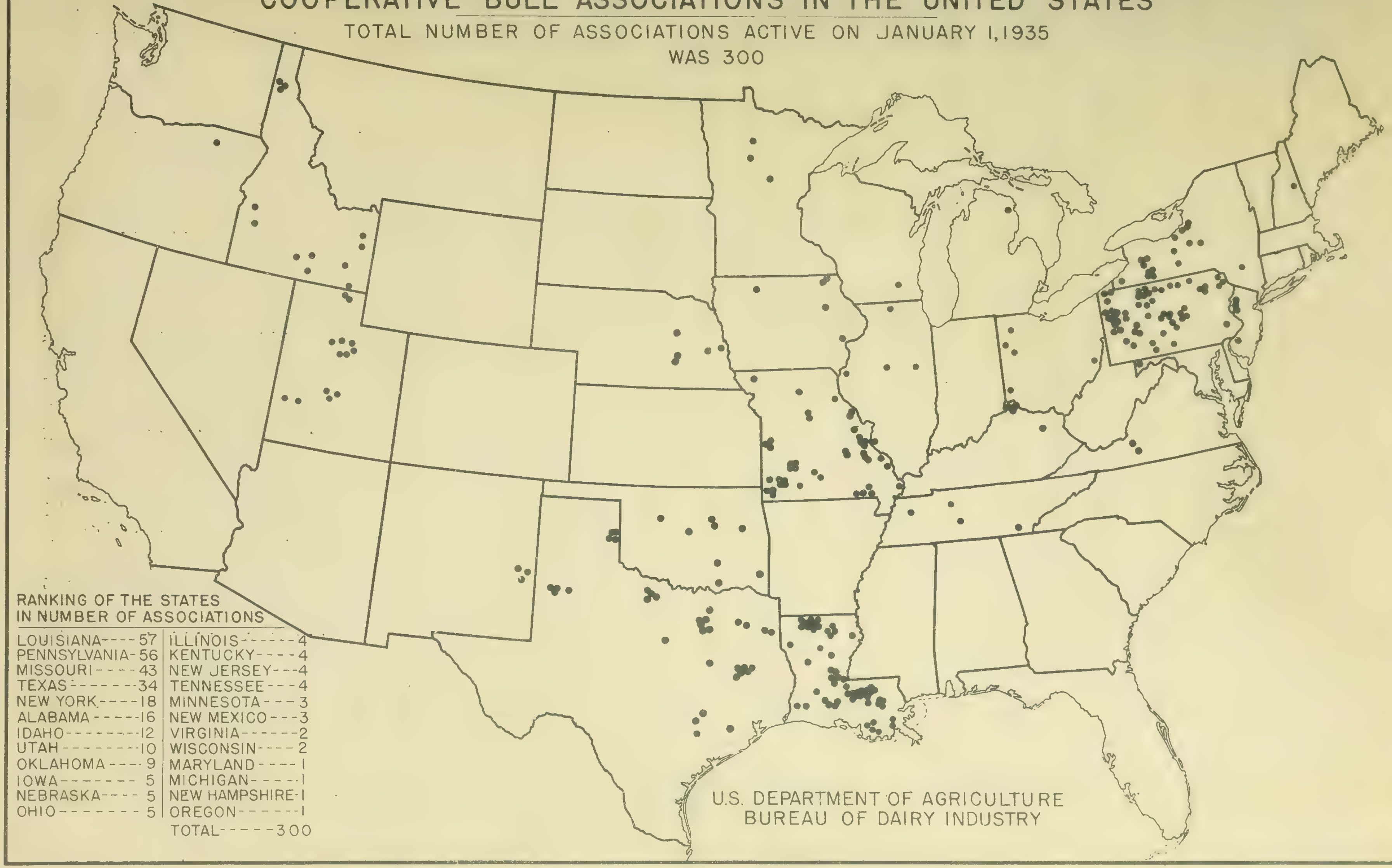
State	Number of ass'ns.	Number of members	Number of bulls	Breed of bulls used 1/ J.	H.	G.	A.	SH.	BS.	Number of cows in all associations Reg.	Other	Total
Alabama	16	296	101	101						400	2,150	2,550
Idaho	12	265	54	11	35	8				394	1,277	1,671
Illinois	4	39*	24	8	12	4				61*	265*	326*
Iowa	5	20	18		9	6			3	119	297	416
Kentucky	4	22	14	7	4	3				191	187	378
Louisiana	57	871	225	202		23				981	9,640	10,621
Maryland	1	6	6	6						13	65	78
Michigan	1	28	3			3				21	186	207
Minnesota	3	189	35		9	26				187	1,621	1,808
Missouri	43	460	144	99	33	12				18*	37*	4,200
Nebraska	5	80	32	4	28					96	206	302
New Hampshire	1	3	3			3				30	20	50
New Jersey	4	18	18		18					256	143	399
New Mexico	3	10	9	9						26	149	175
New York	18	91	74	6	47	21				1,621	508	2,129
Ohio	5	78	19	9	7	3				532	132	664
Oklahoma	9	427	48	39	6		3			767	2,051	2,818
Oregon	1	10	3	3						*	*	*
Pennsylvania	56	457	207	37	119	42	9			5,748	3,380	9,128
Tennessee	4	418	34	34						510	980	1,490
Texas	34	351	138	135				3		695*	911*	2,705
Utah	10	759	36	22	14					175*	1,965*	2,786
Virginia	2	15	8		8					168	162	330
Wisconsin	2	53	6		3	3				180	207	387
Total	300	4,966*	1,259	732	352	157	12	3	3	13,189*	26,539*	45,618*

1/
J. - Jersey
H. - Holstein
G. - Guernsey
A. - Ayrshire
SH. - Shorthorn
BS. - Brown Swiss

*Incomplete data

COOPERATIVE BULL ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER OF ASSOCIATIONS ACTIVE ON JANUARY 1, 1935
WAS 300



RANKING OF THE STATES
IN NUMBER OF ASSOCIATIONS

LOUISIANA	57	ILLINOIS	4
PENNSYLVANIA	56	KENTUCKY	4
MISSOURI	43	NEW JERSEY	4
TEXAS	34	TENNESSEE	4
NEW YORK	18	MINNESOTA	3
ALABAMA	16	NEW MEXICO	3
IDAHO	12	VIRGINIA	2
UTAH	10	WISCONSIN	2
OKLAHOMA	9	MARYLAND	1
IOWA	5	MICHIGAN	1
NEBRASKA	5	NEW HAMPSHIRE	1
OHIO	5	OREGON	1
		TOTAL	300

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

NUMBER OF COOPERATIVE DAIRY BULL ASSOCIATIONS, BY STATES, 1908-1935 INCLUSIVE

Up to and including 1923 data were collected on July 1. Beginning with 1924, reports were made by calendar years. Since 1925 data are as of January 1.

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Mich.	3	7	8	9	7	8	9	8	8	8	7	7	7	7	5	7	6	4	4	6	6	2	1	1	1	1	1
Minn.		1	1	1	1	2	2	2	3	3	3	4	6	15	19	17	18	19	20	*	*	0	2	3	4	3	3
Md.				1	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	1	0	0	0	0	0	1	1
N. Dak.					2	1	1	1	1	1	1	1	1	1	1	2	3	2	1	0	1	0	0	0	0	0	0
Vt.							1	1	1	1	1	2	3	5	4	2	2	1	1	1	0	0	1	1	1	0	0
Oreg.								1	2	2	2	2	2	2	2	1	1	1	1	1	1	*	1	*	1	1	1
Wis.								1	1	1	1	2	1	3	4	4	0	0	0	0	0	0	1	1	1	1	2
Ill.									1	1	1	1	1	1	6	7	8	11	11	10	12	11	9	10	8	9	4
Iowa									1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	5
Mass.									1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. C.									1	4	5	8	9	9	9	9	3	2	0	0	0	0	0	0	0	0	0
S. C.									3	9	9	11	17	20	23	16	10	9	6	5	0	0	0	0	0	0	0
Pa.										2	4	10	21	21	27	24	28	38	43	58	64	71	70	67	61	58	56
Mo.										1	1	1	3	7	10	10	10	12	15	27	31	23	34	39	42	41	43
Ind.											1	3	5	7	7	7	4	3	1	0	0	0	0	0	0	0	0
Utah											3	2	2	2	3	8	14	14	15	11	18	20	15	13	10	10	10
Mont.											1	2	2	2	0	1	1	1	0	0	0	0	0	0	0	0	0
Kans.											1	1	1	1	1	2	1	1	2	4	3	2	2	2	2	1	0
Ala.												1	7	7	7	7	7	0	0	1	2	6	10	14	16	16	16
Ga.												2	1	1	0	0	2	2	0	0	0	0	0	3	2	3	0
La.												1	1	1	1	1	1	3	9	21	53	75	52	66	68	57	57
Miss.												6	11	12	10	9	8	7	4	7	21	10	5	5	4	0	0
N. J.												1	4	6	8	8	2	0	0	0	0	0	2	2	1	2	4
R. I.												1	1	1	1	0	0	0	0	0	*	0	0	0	0	0	0

Number of Cooperative Dairy Bull Associations, By States, 1908-1935 Inclusive (continued)

State	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Tenn.												2	2	2	2	4	4	4	4	4	4	3	3	4	4	4	4
Wash.												1	2	2	3	3	4	4	5	6	4	3	3	3	2	2	0
Wyo.												2	2	2	2	2	1	1	1	0	0	0	0	0	0	0	0
Ark.													3	2	4	6	6	7	9	2	*	3	9	*	4	0	0
Idaho													3	6	9	29	32	32	31	22	18	20	21	20	16	15	12
Nev.													1	1	1	1	1	2	2	1	1	0	0	0	0	0	0
Okla.													1	1	1	4	7	7	9	14	20	28	37	39	25	20	9
Ky.														3	7	9	17	18	17	*	*	0	2	3	5	4	4
Conn.														1	1	2	2	2	2	0	0	0	0	0	0	0	0
N.H.														1	0	0	0	0	0	0	0	0	0	0	0	0	1
Va.														1	1	2	2	2	2	2	2	0	0	1	2	2	2
W. Va.														1	1	1	0	0	0	0	0	0	0	0	0	0	0
Fla.														1	1	1	0	0	1	0	2	2	3	0	0	0	0
Nebr.															1	2	4	5	4	1	1	1	1	1	1	4	5
Ohio															2	2	3	3	3	3	7	7	8	8	6	5	5
Tex.															2	2	0	0	17	19	57	**	57	87	48	80	34
Maine																2	1	0	0	*	2	2	1	0	0	0	0
N.Mex.																	1	1	1	2	3	4	7	7	5	4	3
S.Dak.																	1	2	2	4	3	2	1	1	0	0	0
Del.																			1	*	1	0	0	0	0	0	0
N.Y.																								1	1	6	18
Total	3	8	9	11	11	12	14	15	24	36	44	78	123	158	190	213	220	225	248	235	339	296	350	403	342	351	300

* No report
**Incomplete data.

SONS OF PROVED BULLS

The use of a meritorious proved sire is the surest and best way to improve the dairy herd through breeding. Unfortunately there are not yet enough meritorious proved sires to head any large percentage of our dairy herds.

The next best way to improve a dairy herd through breeding is to head the herd with the son of a meritorious proved sire and a high-producing dam. It has been demonstrated that sons of meritorious proved sires can be used with greater assurance of success than can sons of untried sires.

The number of sons of proved sires reported annually to the Bureau of Dairy Industry is rapidly increasing. During 1934 they were reported at the rate of 13 per week. Eventually the records from dairy herd-improvement associations should identify enough meritorious proved sires or sons of such sires to provide superior breeding to every commercial dairy herd in this country.

Many sires that have been proved in dairy herd-improvement associations have more than 20 living sons listed. One proved sire is listed as having 47 living sons. His 8 daughters have an average yearly butterfat production of 708 pounds as compared to their dams' average of 678 pounds. Another proved sire has 25 living sons. His 21 daughters have an average butterfat production of 610 pounds as compared to their dams' average of 501 pounds. Many similar records are available. The State dairy specialists have a list of sons of sires proved in their particular States.

If all the sons of meritorious proved sires can be registered and kept alive until their dams have made yearly lactation records, and if a list of such young bulls, together with the records of dams and sires, can be made available at all times to the owners of dairy herds, a rapid advance can be made in the improvement of our dairy herds through breeding.

- - - - - - - -

CORRECTION

In the February Dairy Herd-Improvement Association Letter on page 4, Vermont with 575 association members should have been given ninth place in the list of ten high States in total number of members of Dairy Herd-Improvement Associations, January 1, 1935.

DAIRY HERD IMPROVEMENT ASSOCIATIONS
TEST THE COWS
PROVE THE BULLS
BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 11, No. 4

April 1935

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"AT LEAST ONE PROVED SIRE FOR EACH D.H.I.A. IN 1935"

The goal in 1935 is to prove at least one sire, by the lactation records of the daughters and their dams, for each dairy herd-improvement association in operation.

One hundred and seventeen dairy sires were proved in 24 States by the lactation method during the first 3 months of 1935. Three States, New Mexico, Texas, and Utah have already attained the goal of "AT LEAST ONE PROVED SIRE FOR EACH D.H.I.A. IN 1935." If the goal is to be reached in every State for this year, 25 percent of that goal should already be attained. The percentage of the 1935 goal which has been attained in the 44 States reporting dam-and-daughter lactation records is 19.1.

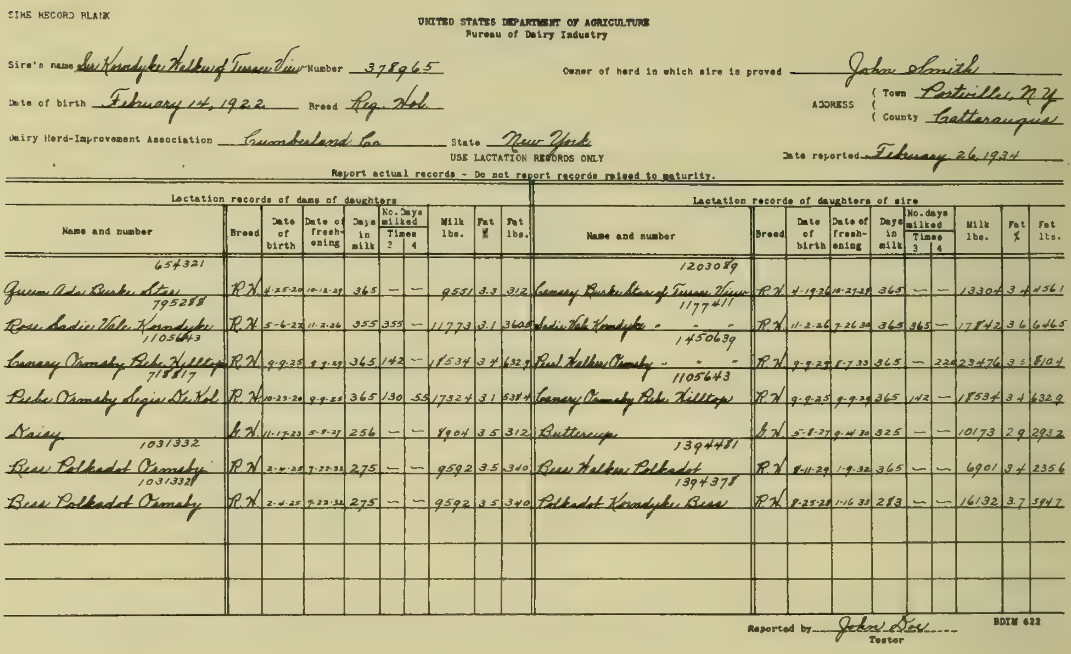
Eleven States, in addition to the 3 mentioned above, have attained 25 percent or more of their goal. They are Nebraska, Connecticut, Idaho, Iowa, Kansas, Louisiana, New Hampshire, Virginia, Oregon, South Dakota, and Washington. The status of the proved sire work in each State is given on page 3.

Last year only 3 out of every 10 testers reported dam-and-daughter lactation records to prove sires. Every tester should be urged to fill out at least one SIRE RECORD BLANK (BDIM 622) during the next 9 months. A copy of a sire record blank as it should be filled out by the tester is shown on page 2 (Figure 1). Figure 2 shows a copy of a PROVED SIRE RECORD (BDIM 622A) tabulated by the Bureau of Dairy Industry, U. S. Department of Agriculture.

Every association and every State should be able to reach the goal;

"AT LEAST ONE PROVED SIRE FOR EACH D.H.I.A. IN 1935."

FIGURE I



SIRE RECORD BLANK

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Dairy Industry

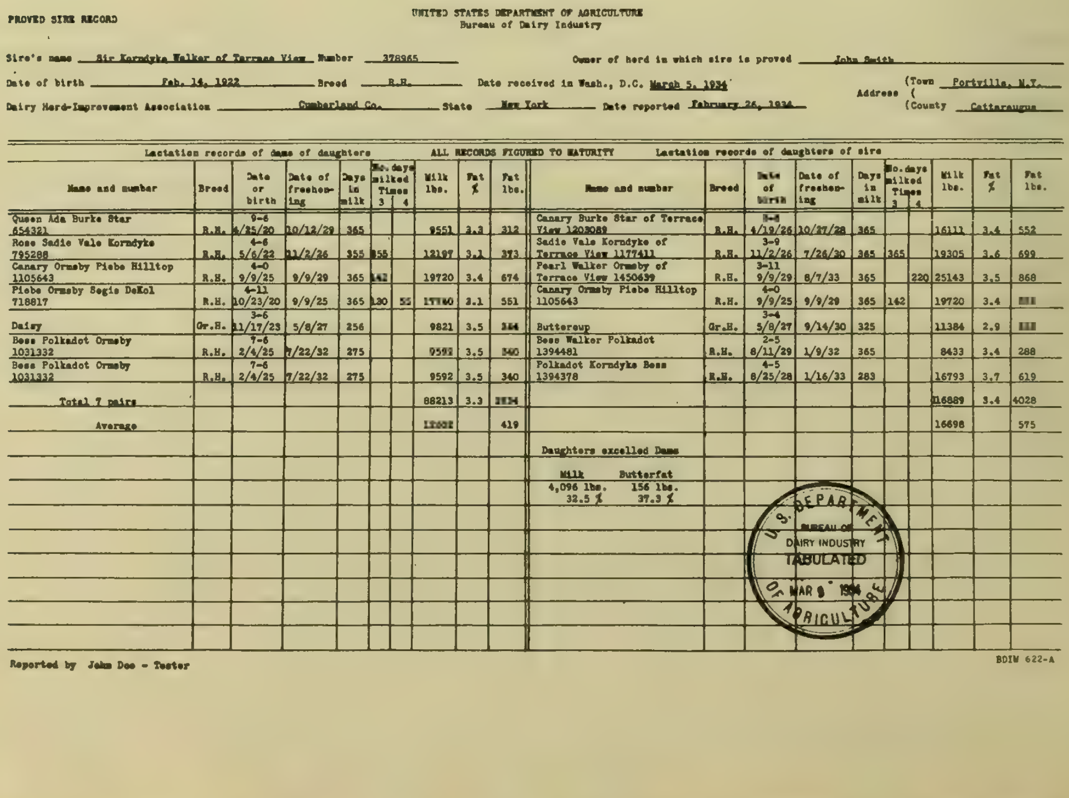
Sire's name Sir Korndyke Walker of Terrace View Number 378965
Owner of herd in which sire is proved John Smith
Date of birth February 14, 1922 Breed Reg. Hol.
ADDRESS (Town Portville, N.Y. (County Cattaraugus
Dairy Herd-Improvement Association Cumberland Co. State New York
USE LACTATION RECORDS ONLY
Date reported February 26, 1934
Report actual records - Do not report records raised to maturity.

Lactation records of dams of daughters										Lactation records of daughters of sire									
Name and number	Breed	Date of birth	Date of freshening	Days in milk	No. days milked Times 3	No. days milked Times 4	Milk lbs.	Fat %	Fat lbs.	Name and number	Breed	Date of birth	Date of freshening	Days in milk	No. days milked Times 3	No. days milked Times 4	Milk lbs.	Fat %	Fat lbs.
654321 Queen Ada Burke Star	R.H.	4-25-20	10-12-29	365	—	—	9551	3.3	312	1203089 Canary Burke Star of Terrace View	R.H.	4-19-26	10-27-28	365	—	—	13304	3.4	456.1
795288 Rose Sadie Vale Korndyke	R.H.	5-6-22	11-2-26	355	355	—	11773	3.1	360.8	1177411 Sadie Vale Korndyke " " "	R.H.	11-2-26	7-26-30	365	365	—	17842	3.6	646.5
1105643 Canary Ormsby Piebe Hilltop	R.H.	9-9-25	9-9-29	365	142	—	18534	3.4	632.9	1450639 Pearl Walker Ormsby " " "	R.H.	9-9-29	8-7-33	365	—	220	23476	3.5	810.4
718817 Piebe Ormsby Segis DeKol	R.H.	10-23-20	9-9-25	365	130	55	17324	3.1	538.4	1105643 Canary Ormsby Piebe Hilltop	R.H.	9-9-25	9-9-29	365	142	—	18534	3.4	632.9
Daisy	G.H.	11-17-23	5-8-27	256	—	—	8904	3.5	312	Buttercup	G.H.	5-8-27	9-14-30	325	—	—	10173	2.9	293.2
1031332 Bess Polkadot Ormsby	R.H.	2-4-25	7-22-32	275	—	—	9592	3.5	340	1394481 Bess Walker Polkadot	R.H.	8-11-29	1-9-32	365	—	—	6901	3.4	235.6
1031332 Bess Polkadot Ormsby	R.H.	2-4-25	7-22-32	275	—	—	9592	3.5	340	1394378 Polkadot Korndyke Bess	R.H.	8-25-28	1-16-33	283	—	—	16132	3.7	594.7

Reported by John Doe
Tester

BDIM 622

FIGURE II



PROVED SIRE RECORD

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Dairy Industry

Sire's name Sir Korndyke Walker of Terrace View Number 378965
Owner of herd in which sire is proved John Smith
Date of birth Feb. 14, 1922 Breed R.H. Date received in Wash., D.C. March 5, 1934
Address (Town Portville, N.Y. (County Cattaraugus
Dairy Herd-Improvement Association Cumberland Co. State New York Date reported February 26, 1934

Lactation records of dams of daughters										ALL RECORDS FIGURED TO MATURITY — Lactation records of daughters of sire									
Name and number	Breed	Date or birth	Date of freshening	Days in milk	No. days milked Times 3	No. days milked Times 4	Milk lbs.	Fat %	Fat lbs.	Name and number	Breed	Date of birth	Date of freshening	Days in milk	No. days milked Times 3	No. days milked Times 4	Milk lbs.	Fat %	Fat lbs.
Queen Ada Burke Star 654321	R.H.	9-6 4/25/20	10/12/29	365			9551	3.3	312	Canary Burke Star of Terrace View 1203089	R.H.	[illegible] 4/19/26	10/27/28	365			16111	3.4	552
Rose Sadie Vale Korndyke 795288	R.H.	4-6 5/6/22	11/2/26	355	355		12197	3.1	373	Sadie Vale Korndyke of Terrace View 1177411	R.H.	3-9 11/2/26	7/26/30	365	365		19305	3.6	699
Canary Ormsby Piebe Hilltop 1105643	R.H.	4-0 9/9/25	9/9/29	365	142		19720	3.4	674	Pearl Walker Ormsby of Terrace View 1450639	R.H.	3-11 9/9/29	8/7/33	365		220	25143	3.5	868
Piebe Ormsby Segis DeKol 718817	R.H.	4-11 10/23/20	9/9/25	365	130	55	[illegible]	3.1	551	Canary Ormsby Piebe Hilltop 1105643	R.H.	4-0 9/9/25	9/9/29	365	142		19720	3.4	[illegible]
Daisy	Gr.H.	3-6 11/17/23	5/8/27	256			9821	3.5	[illegible]	Buttercup	Gr.H.	3-4 5/8/27	9/14/30	325			11384	2.9	[illegible]
Bess Polkadot Ormsby 1031332	R.H.	7-6 2/4/25	7/22/32	275			9592	3.5	340	Bess Walker Polkadot 1394481	R.H.	2-5 8/11/29	1/9/32	365			8433	3.4	288
Bess Polkadot Ormsby 1031332	R.H.	7-6 2/4/25	7/22/32	275			9592	3.5	340	Polkadot Korndyke Bess 1394378	R.H.	4-5 8/25/28	1/16/33	283			16793	3.7	619
Total 7 pairs							88213	3.3	[illegible]								116889	3.4	4028
Average							[illegible]		419								16698		575
										Daughters excelled Dams									
										Milk 4,096 lbs. 32.5 % Butterfat 156 lbs. 37.3 %									

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY
TABULATED
MAR 9 1934

Reported by John Doe - Tester

BDIM 622-A

STATUS OF PROVED-SIRE WORK IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS FOR THE FIRST QUARTER OF 1935 IN THE STATES PROVING SIRES WITH LACTATION RECORDS

State	Number of associations active on Jan. 1, 1935	Number of sires proved in the first 3 months of 1935	Percentage of 1935 goal attained	State	Number of associations active on Jan. 1, 1935	Number of sires proved in the first 3 months of 1935	Percentage of 1935 goal attained
Alabama	1			Nebraska	14	4	28.57
*Arizona	2			Nevada	0		
Arkansas	0			New Hampshire	9	4	44.44
California	52	4	7.69	New Jersey	18	1	5.56
Colorado	11	2	18.18	New Mexico	1	1	100.00
Connecticut	8	3	37.50	New York	81	20	24.69
Delaware	1			North Carolina	6		
Florida	0			North Dakota	4		
Georgia	1			*Ohio	27		
Idaho	4	3	75.00	Oklahoma	12		
Illinois	57	14	24.56	Oregon	9	5	55.56
Indiana	33			*Pennsylvania	84	1	1.19
Iowa	52	13	25.00	Rhode Island	3		
Kansas	13	5	38.46	South Carolina	1		
Kentucky	6			South Dakota	3	2	66.67
Louisiana	4	1	25.00	Tennessee	4		
Maryland	10			Texas	3	4	133.33
Maine	3			Utah	1	1	100.00
Massachusetts	11			Vermont	27	4	14.81
Michigan	46	8	17.39	Virginia	23	8	34.78
Minnesota	30	1	3.33	Washington	10	7	70.00
Mississippi	0			West Virginia	6		
Missouri	19			*Wisconsin	94	1	1.06
Montana	4			Wyoming	1		
				Total	809	117	14.46

*Arizona, Ohio, Pennsylvania, and Wisconsin prove sires with 12-month records.
(Omitting these States the percentage of 1935 goal attained is 19.1)

LEADING SIRES PROVED

Records are given for sires proved during the period beginning January 1 and ending March 31 whose daughters show greatest gain over their dams when the average production level of the dams was (1) under 300 pounds butterfat, (2) between 300 pounds and 400 pounds butterfat, and (3) over 400 pounds butterfat. The leading sires for the three-month period mated to dams of these classes are as follows:

BUTTERFAT-PRODUCTION CLASS OF DAMS

	Under 300 pounds		300-400 pounds		Over 400 pounds	
State:	New York		Kansas		Iowa	
Breed:	Guernsey		Guernsey		Jersey	
	Dams pounds	Daughters pounds	Dams pounds	Daughters pounds	Dams pounds	Daughters pounds
	370	483	202	516	599	608
	212	478	202	580	670	616
	299	414	220	343	498	758
	299	422	341	410	407	683
	171	370	435	371	676	798
	422	299	297	506		
			497	493		
			220	438		
			341	422		
			497	428		
			472	519		
			198	487		
Average production	296	411	327	459	570	693
Average increase (pounds):	115		132		123	
Average increase (percent)	39.1		40.6		21.5	

DAIRY HERD IMPROVEMENT ASSOCIATIONS
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Dairy-Herd-Improvement Association Letter Vol. 11 No. 8

August 1935

INCREASED INTEREST AND ACTIVITY IN BULL ASSOCIATION WORK

From all parts of the country, extension dairymen and county agents report increasing interest in bull associations. Dairymen, especially those with small herds, recognize the value of bull associations in enabling them to obtain the services of good bulls at relatively small cost. Through a bull association a dairyman with a small herd can obtain a good bull and dairymen with large herds can obtain better bulls. A dairyman can take no step that will bring greater returns per dollar invested than to join a carefully organized, wide awake, dairy bull association.

Bull Associations Lead the Way in an Extensive, Progressive Breeding Program

From Missouri comes the statement: "Bull associations are proving the best and most practical means of establishing breed centers." In that State there were 42 associations with 127 blocks. The total cost of these bulls was $17,562, or an average of about $138. The average investment per farmer was $42.83.

In Utah a bull association was organized in 1928 with 33 members. The people of that community say that the organization of a cooperative bull association, "is one of the best things that has ever happened in our dairy work;" and they are planning to enlarge their association by adding two more blocks. The cost of operation during 1933 was $1.35 per cow.

The Bradley County, Tennessee, dairy bull association claims to have two outstanding dairy bulls in its organization. These two bulls have been used in different blocks 11 years and their value in improving the herds of the community has been estimated at $40,000.

Louisiana reports a noticeable increase in production in the herds owned in her 57 cooperative dairy bull associations.

Pennsylvania reports that, "in 22 dairy herd-improvement associations (about 400 herds) the records of the herds belonging to bull association members rank from first to not lower than fourth place."

Better Bulls Obtained Through Bull Associations

During the last year 31 bull-association bulls were proved. The daughters of these bulls had an average yearly butterfat production of 431 pounds as compared to the average of their dams which was 413 pounds. This was a gain of 18 pounds, or 4.3 percent. These figures indicate that dairymen have carefully selected the bulls which head their bull association blocks. Through joint effort they were financially able to purchase bulls which gave promise of having valuable breeding qualities.

Nebraska reports: "The Saunders County Bull Association has been very successful in improving dairy herds in the association. Only sires from dams whose production records are 750 pounds of butter or more are purchased by the association."

Idaho reports that during the last few years 15 bull-association bulls have been proved in the State. The daughters of these bulls had an average yearly butterfat production of 407 pounds, excelling their dams by 46 pounds.

Proving Bull-Association Bulls

Bull-association bulls should be proved as quickly as possible. Their influence is so widely disseminated that it is very important to know early the production capacity each bull is transmitting. On January 1, 1935 there were 1,259 registered dairy bulls owned by 300 dairy bull associations in the United States. All these bulls should have been proved during the last year. Pedigrees are promises, but proved-sire records are a fulfilment of promises. Just as production records remove the guesswork in selecting cows in dairy herd-improvement association herds, dam-and-daughter production records will remove much of the guesswork in selecting bulls. Every bull association should strive to prove every bull in the association.

CORRECTION

In the July Dairy Herd-Improvement Association Letter, Volume 11, Number 7, page 6, the list of three leading herds, each consisting of from 10 to 20 cows, having highest average butterfat production per cow should read:

Rank	Herd Owner	Association	State	Ave.b'fat. production	Number of cows
1	E. M. Sautman	Benton No.4	Iowa	593	19
2	Milwaukee Co.Inst.Dairy #3	Milwaukee Co.	Wisconsin	572	11
3	Charles McCulloch	Coos Bay	Oregon	531	17

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HERDS IN REVERSE

No automobile driver would throw his car "in reverse" to go forward. But many dairymen use bulls that throw their herds in reverse as far as milk and butterfat production is concerned.

A dairyman living in New York State relates an experience common to many dairymen. He had a herd of fairly high-producing cows, with an average production of 12,353 pounds of milk and 405 pounds of butterfat. He was very careful to select a bull with a good pedigree. The production of the bull's dam and of his sire's dam was well above that of the average of the herd.

Being a member of a dairy herd-improvement association afforded this dairyman an opportunity to prove his bull by comparing the records of the bull's first daughters (11 in number) with their dams. The average production of the daughters, when raised to a mature basis, was 9,848 pounds of milk and 324 pounds of butterfat, or 20 percent less than that of their dams. Expressed another way, for every 100 pounds of milk or butterfat produced by the dams only 80 pounds was produced by the daughters. This bull was consistent in breeding the herd down----in throwing the herd in reverse. Ten of his 11 daughters produced less butterfat than their dams. He had only one daughter that excelled her dam in production of butterfat.

A pedigree is a history of a bull's ancestry. Bulls whose pedigrees contain high producers back for three or more generations show promise for transmitting high-production capacity, but such a pedigree is not a guarantee that the bull will transmit high-production capacity. Proving a bull, by making dam-and-daughter comparisons, is the best known way to determine the production capacity the bull is transmitting to his daughters.

Everytime a dairyman increases the production of his herd by 50 pounds of butterfat the more important the proving of the next herd sire becomes. The owner of a medium- or high-producing herd knows that each time he selects a new bull to head his herd one of three things will happen. That bull will (1) breed the herd up, (2) maintain it at its present level, or (3) breed it down to lower production.

The higher the production of the herd the higher the percentage of bulls that would lower its production----throw it in reverse----and the more difficult it is to find bulls that will raise or at least maintain the herd's production. Members of dairy herd-improvement associations are proving their bulls as early as possible. If the herd sire is throwing the herd in reverse, the sooner the dairyman knows it the better.

MORE TESTERS SHOULD REPORT DAM-AND-DAUGHTER RECORDS FOR PROVING SIRES

Although 340 sires were proved by the lactation method during the first 8 months of 1935, the dam-and-daughter records were reported by only 173 of the 809 testers in the country. In other words, only one tester out of five reported lactation data for proving sires. Four testers out of five have not reported dam-and-daughter data.

Every tester should be able to supply data for proving at least one sire in his association during the year. One tester in Kansas, R. E. Bausman, has already reported data that proved 10 sires in his association this year. Many others have proved four and five sires in their associations this year. Those testers who have not yet reported dam-and-daughter records still have plenty of time to make their quota of, "AT LEAST ONE PROVED SIRE FOR EACH DHIA IN 1935."

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NATIONAL PROGRAM FOR PROVING SIRES IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

Improving dairy herds through breeding is an important phase of the dairy herd-improvement association program. Association members have in recent years taken an active interest in proving their herd sires by comparing the production records of the daughters of the sire with the records of the dams of the daughters.

With the interest and activity in proving sires in these associations becoming so widespread, there arose a need for more uniformity in collecting and analyzing the data so that the proving of sires in these associations would be on a comparable basis throughout the entire country. Recognizing this need, the Sire Committee of the Extension Section of the American Dairy Science Association, in June 1935, formulated plans for a National Program For Proving Sires in Dairy Herd-Improvement Associations.

Outline of the National Program

Objective

The objective of the national program is to enlist the active cooperation of all States in order that proved-sire work in dairy herd-improvement associations may be uniform and include all herds on test throughout the country.

Method

Proved-sire work under the national program will be conducted as at present. Dam-and-daughter production data will be reported by the association testers and forwarded to the State dairy extension specialists who in turn will forward them to the Division of Dairy Herd Improvement Investigations for tabulation and analysis. The tabulated proved-sire records are to be returned in triplicate to the States by the Division of Dairy Herd Improvement Investigations.

Lactation Records

The production records used shall be lactation records consisting of the first 305 days' production raised to a mature basis, and converted to a 2-times-a-day milking basis. When a dam or daughter has more than one lactation record available the average of all records shall be used.

Proved-Sire List

To further increase the value of the proved-sire work a list of sires proved under the plans of the national program will be published periodically for general distribution.

Permanent Herd-Record Book

In order that dairymen in dairy herd-improvement associations may have under one cover a complete record of individual cows in their herds, a loose-leaf permanent herdbook will be provided. In this permanent herdbook the dairyman will have on one page the complete lifetime production record of each cow in his herd. Such a record should aid greatly in planning and conducting a constructive breeding program.

Program Being Placed in Operation

Forms have already been placed in the hands of State dairy specialists to distribute to association testers for reporting dam-and-daughter data under the new uniform program.

Booklet for Proving Sires

A booklet, "Proving Dairy Sires in Dairy Herd-Improvement Associations by the Lactation Records of the Daughters and Their Dams," BDIM-623 Revised, by J. F. Kendrick, will be available for distribution in a few weeks. This booklet embodies the plans of the national program for proving dairy sires. It is designed to present the program and serve as a guide to the dairyman, the tester, the county agent, and others engaged in reporting dam-and-daughter records for proving sires in dairy herd-improvement associations. Copies will be available for all members of dairy herd-improvement associations.

STATUS OF PROVED-SIRE WORK

Three hundred and eighty-two dairy sires were proved in 29 States using lactation records during the first 9 months of 1935. Eight States have already attained the goal of "AT LEAST ONE PROVED SIRE FOR EACH DHIA IN 1935." They are:

Kansas
Washington
Louisiana
Texas
Utah
Iowa
New Mexico
South Dakota

If the goal is to be reached in every State this year 75 percent of the goal should now be attained. Six States in addition to the 8 mentioned above have attained 75 percent or more of their goal. They are:

Nebraska
Colorado
Michigan
New Hampshire
Idaho
Montana

The status of the proved-sire work in each State is given in the table on page 4.

KANSAS HEADS LIST

Kansas, with 13 associations, has proved 39 sires, attaining 300 percent of her goal. How many sires can be proved in each dairy herd-improvement association in a State during a year? Kansas has proved 3 sires for each association in the first 9 months of 1935.

MOST DAIRY HERD-IMPROVEMENT ASSOCIATIONS HAVE DAM-AND-DAUGHTER DATA TO PROVE SIRES

In most associations there exist dam-and-daughter data to prove several sires. However, those sires cannot and will not be proved until the association tester reports the data to his State dairy specialist.

As testers become familiar with proved-sire work, and its value to dairymen in improving their herds, they report more data for proving sires.

STATUS OF PROVED-SIRE WORK FOR THE FIRST 9 MONTHS OF 1935 IN THE STATES PROVING SIRES WITH LACTATION RECORDS

State	Number of associations active on Jan. 1, 1935	Number of sires proved in the first 9 months of 1935	Percentage of 1935 goal attained
Kansas	13	39	300.00
Washington	10	21	210.00
Louisiana	4	8	200.00
Texas	3	4	133.33
Iowa	52	54	103.85
New Mexico	1	1	100.00
South Dakota	3	3	100.00
Utah	1	1	100.00
Nebraska	14	13	92.86
Colorado	11	10	90.91
Michigan	46	36	78.26
New Hampshire	9	7	77.78
Idaho	4	3	75.00
Montana	4	3	75.00
New Jersey	18	13	72.22
Virginia	23	16	69.57
Maine	3	2	66.67
West Virginia	6	4	66.67
Illinois	57	36	63.16
New York	81	50	61.73
Oregon	9	5	55.56
Connecticut	8	4	50.00
California	52	18	34.62
Minnesota	30	10	33.33
Vermont	27	8	29.63
North Carolina	6	1	16.67
Indiana	33	5	15.15
*Pennsylvania	84	6	7.14
*Wisconsin	94	1	1.06
Alabama	1		
Arizona	2		
Arkansas	0		
Delaware	1		
Florida	0		
Georgia	1		
Kentucky	6		
Maryland	10		
Massachusetts	11		
Mississippi	0		
Missouri	19		
Nevada	0		
North Dakota	4		
*Ohio	27		
Oklahoma	12		
Rhode Island	3		
South Carolina	1		
Tennessee	4		
Wyoming	1		
Total	809	382	47.22

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* Ohio, Pennsylvania, and Wisconsin prove sires with 12-month records.

DAIRY HERD IMPROVEMENT ASSOCIATIONS
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AVERAGE DHIA COW PRODUCED 319 POUNDS OF BUTTERFAT IN 1936

The average butterfat production of the cows on test in 1936 was 319 pounds. This is the first year the average has been less than that of the preceding year; though the production in 1935, when compared with that of 1934, showed neither a gain nor a loss.

Does that mean that average butterfat production per cow has reached its peak for the cows on test and that from now on we may look for a decline?

The 1935 average was based on the records of 200,367 cows in 720 associations, while the 1936 average was based on the records of 257,248 cows in 797 associations. This was an increase of 56,881 in the number of cows on test and an increase of 77 in the number of associations. As more associations are organized and more cows are placed on test the work dips down into lower strata of production. Average production will decline further as more cows are placed on test unless the association members cull closer, feed more intelligently, and make a more extensive use of good proved bulls and the sons of good proved bulls.

The following table shows the average production of butterfat per cow in the dairy herd-improvement associations, by years:

Year	Butterfat production per cow	Year	Butterfat production per cow
1906	215	1929	298
1907	220	1930	303
1920	247	1931	306
1924	279	1932	310
1925	284	1933	313
1926	289	1934	322
1927	293	1935	322
1928	296	1936	319

SUMMARY OF THE 1935-36 DAIRY HERD-IMPROVEMENT ASSOCIATION RECORDS, BY STATES

State	Associations active Jan. 1, 1936	Association reports received for tabulation	Individual cow records	Average production			Value of product	Cost of roughage	Cost of grain	Total feed cost	Value of product over feed cost
				Milk	Test	Butterfat					
	Number	Number	Number	Pounds	Percent	Pounds	Dollars	Dollars	Dollars	Dollars	Dollars
Ariz.	2	2	646	8,458	3.9	327	160	52	18	70	90
Calif.	56	39	51,999**	8,272	4.1	340	-	-	-	-	-
Colo.	9	8	1,436	10,109	3.7	377	208	55	36	91	117
Conn.	13	13	7,033**	7,261	4.1	296	228	56	38	94	134
Del.	1	1	259	7,545	4.2	319	183	38	33	71	112
Ga.	1	-	-	-	-	-	-	-	-	-	-
Idaho	5	5	951	8,188	4.3	352	147	34	16	50	97
Ill.	63	62	13,231	7,984	3.9	310	141	37	24	61	80
Ind.	30	29	6,382	7,484	4.4	330	146	27	27	54	92
Iowa	54	54	12,996	7,809	4.1	318	119	27	26	53	66
Kans.	15	12	2,326	7,165	4.1	294	152	32	32	64	88
Ky.	7	7	2,083	6,785	4.6	310	143	30	29	59	84
La.	11	4	781	5,262	4.4	231	148	20	31	51	97
Maine	7	7	1,364	6,824	4.3	296	157	29	38	67	90
Md.	10	10	2,498	7,411	4.3	316	182	32	38	70	112
Mass.	13	10	3,838	8,057	4.0	323	263	67	44	111	152
Mich.	51	48	9,464	8,105	4.2	337	149	31	29	60	89
Minn.	30	29	6,034	7.912	3.9	305	122	27	20	47	75
Mo.	21	20	3,150	7,054	4.3	306	190	35	34	69	121
Mont.	4	3	289	8,610	3.7	321	147	43	21	64	83
Nebr.	16	12	1,463	8,177	4.0	326	129	32	23	55	74

State	Number	Number	Number	Pounds	Percent	Pounds	Dollars	Dollars	Dollars	Dollars	Dollars
Nev.	1	-	-	-	-	-	-	-	-	-	-
N.H.	9	9	3,125	7,759	3.9	303	201	51	43	94	107
N.J.	19	15	5,065	8,781	3.8	330	250	56	44	100	150
*N.Mex.	1	2	55	9,898	3.5	350	218	68	23	91	127
N.Y.	96	93	29,083	8,092	3.8	309	168	35	34	69	99
N.C.	6	7	2,390	6,695	4.4	293	245	50	45	95	150
N.Dak.	2	2	222	9,048	3.6	325	159	24	25	49	110
Ohio	32	31	5,259	7,776	4.4	339	162	33	33	66	96
Okla.	13	8	1,013	6,450	4.5	287	189	32	38	70	119
Oreg.	10	8	3,151	7,214	4.8	343	148	38	25	63	85
*Pa.	86	87	23,247	8,333	4.0	334	196	38	40	78	118
R.I.	3	3	1,431	7,759	3.9	306	269	67	45	112	157
S.C.	1	-	-	-	-	-	-	-	-	-	-
S.Dak.	2	2	310	7,714	3.8	297	115	22	15	37	78
Tenn.	3	3	518	5,892	4.7	279	149	25	39	64	85
Tex.	5	2	396	4,662	5.1	240	79	14	12	26	53
Utah	2	2	383	7,729	4.4	341	138	44	23	67	71
Vt.	30	26	9,639	6,660	4.2	282	142	33	30	63	79
*Va.	23	24	8,098	7,617	4.2	318	207	43	39	82	125
Wash.	11	10	3,290	8,790	4.1	358	156	45	26	71	85
W.Va.	6	6	721	7,338	4.4	323	199	37	35	72	127
Wis.	95	82	31,629**	7,802	3.8	299	125	34	18	52	73
Wyo.	1	-	-	-	-	-	-	-	-	-	-
Total	876	797	257,248								
Average				7,912**	4.0**	319**	164	37***	31***	68***	96***

*Records were received from more associations than were reported active on January 1, 1936.

**Cow years.

***Exclusive of California.

BUTTERFAT PRODUCTION AND INCOME

The following table based on the 1936 records shows how rapidly feed cost and income above feed cost advanced as production increased from 100 pounds of butterfat per cow in the lowest producing group, to 500 pounds per cow in the highest producing group.

Group number	Butterfat per cow	Cost of feed per cow	Income over cost of feed per cow
1	100	$47	$ 8
2	200	56	48
3	300	67	91
4	400	79	134
5	500	90	178

These figures show that as butterfat production advanced from 100 pounds in group 1 to 500 pounds in group 5 the cost of feed was increased from $47 to $90 and the income over cost of feed climbed from $8 to $178. Stated in another way: As butterfat production was multiplied by 5, cost of feed was multiplied by 2, and income over cost of feed was multiplied by 22.

DAIRY FARM RECORDS AN AID TO MORE PROFITABLE DAIRY FARMING

In managing their farms for maximum profits, dairy farmers very frequently find it necessary to meet changing conditions, both physical and economic. This at once establishes the fact that the most profitable farm program cannot be guided by hard-and-fast rules. Consequently a broad background of knowledge is required if one is to be successful in meeting these various situations. When one has resorted to this long tedious method of education he may have only a few years left in which to apply his knowledge and in those years may be faced with an entirely new set of problems. Complete dairy farm records, however, will enable the dairyman to intelligently attack current farm problems.

Recognizing the need for studying all sides of dairy farming, the Bureau of Dairy Industry and Bureau of Agricultural Economics are cooperating in a project in which records of income and expenses on each part of the business will be kept by farmers in dairy herd-improvement associations in States that wish to cooperate. These records, when properly summarized, give a history of the management of the farm. They show the farmer the effect his management practices have had on his profits. It is important that unprofitable conditions be remedied promptly, otherwise serious losses may result or opportunities for gain may not be recognized.

"The Dairy Farm Record Project," BDIM-722, outlines the organization and cooperative State and Federal set-up of the dairy farm record project and "Why Dairy Farm Records,". BDIM-772, outlines the general nature of information that will be returned to cooperating States. Either circular may be obtained upon request.

IMPROVEMENT
DAIRY HERD ASSOCIATIONS
HERD BOOK
TEST THE COWS
PROVE THE BULLS
BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 13 No. 9

October 1937

ORGANIZING AND OPERATING BULL ASSOCIATIONS

Back of every successful bull association usually will be found an active county agent who, with the assistance of the State dairy extension specialist, is conducting a broad cooperative dairy cattle b reeding program for the benefit of his community.

Dairymen seldom organize a bull association on their own initiative. It is often the county agent who organizes such associations. He perceives the need for and visualizes the possibilities of an organized cooperative dairy cattle breeding program, and finds that a cooperative bull association will be the best agency for conducting such a program.

It is usually the interest and enthusiasm of the county agent and his guiding influence that keeps the bull association operating year after year. It is he who assists the association in conducting its affairs on sound business principles. It is he who sees that records are kept, reports are compiled, and the membership is informed of the activities of the association.

The county agent is invaluable in the development of a successful bull association program. When the bull association is a part of the county extension program, the association lives and prospers, and achieves its objective of improving dairy cattle.

To aid the county agent in organizing a bull association and assist in its operation, the Bureau of Dairy Industry has issued two publications, "Organizing Cooperative Dairy Bull Associations," BDIM-691, and "Record Book for Secretary-Treasurer of Cooperative Dairy Bull Association," BDIM-723. The leaflet, "Organizing Cooperative Dairy Bull Associations," as the title implies, covers the various details of organizing and operating an association. Copies of the leaflet may be obtained by writing to the Bureau of Dairy Industry, U. S. Department of Agriculture, Washington, D. C.

The bull association secretary-treasurer's record book is designed to simplify the keeping of a complete record of all the activities of the bull association. Every association secretary should have a secretary-treasurer's book. County agents contemplating the organization of a bull association should obtain a secretary-treasurer's book that complete data may be kept of associations from the beginning. Copies may be obtained only from State dairy extension specialists.

Why Should Dairymen be Members of a Cooperative Bull Association?

1. To obtain the services of better bulls for their herds.

   Dairymen cooperating through a bull association can usually afford to buy the best available sires for use in their herds.

2. To reduce the cost of sire service for their herds.

   Usually the cost to the individual member of obtaining the services of outstanding sires through a bull association is less than the amount the member would pay for an ordinary sire if he were to buy it individually.

3. To reduce the risk of buying an inferior sire.

   In a bull association the bulls are owned by the association. Should a bull prove inferior the association bears the loss, not any one individual.

4. To reduce the risk of using an inferior sire.

   Members of bull associations have an opportunity to "sample" a bull before using him extensively in their herds. Dairymen may select and use only the good bulls in building their future herds.

The bull association with its program of progressive dairy cattle breeding will enable dairymen to systematically improve their herds with the minimum risk and cost.

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Dairy Herd-Improvement Association Letter Vol. 13 No. 10

November 1937

DAIRY FARM RECORDS REVEAL PROFITABLE FARM PRACTICES

Since cow-testing association work began in 1905, it has become generally recognized that testing and record keeping provides information whereby dairymen may systematically improve their dairy herds. Complete feed and production records have enabled dairymen to cull effectively and to feed the remaining cows in the herd more intelligently or, in other words, according to production. Complete herd records have revealed to dairymen the more profitable herd management practices, enabling them to discontinue unprofitable methods and to develop more fully those that are profitable.

As complete herd records have aided the dairyman in his herd management practices, complete dairy farm records will aid the dairy farmer in his farm management practices. With complete records of the entire farm business the dairy farmer may determine the most profitable balance between his various farm enterprises. Very often a dairyman will lose money on his farm operations as a whole, even though he has a high-producing, profitable herd. In such cases records will show the profits of the dairy herd are being consumed by some other enterprise on the farm that is a money losing proposition.

Complete records of the farm business will enable dairy farmers to operate their farms so as to obtain the greatest continuous profits.

"Proving" Farm Practices

How much faster and farther dairymen might have progressed in increasing milk and butterfat production and dairy profits if, years ago, data had been available to prove bulls and dairymen could have avoided the use of those bulls which pulled production down.

Through the coordinated State and Federal Dairy Farm Record Project complete dairy farm records are being obtained. When properly analyzed and interpreted these will provide positive information for "proving" farm practices under given sets of conditions. Agricultural leaders may then provide dairy farmers with definite facts on which to develop profitable programs to replace practices which yield little more than a bare living. New programs should provide for the changes which have or are taking place in dairy farming.

Dairy Farming Commercialized

Dairy farming is now commercialized in the sense that it requires large investments of capital. Formerly, farmers raised their crops from plant food which nature had spent thousands of years providing. Today many farmers must not only supply commercial fertilizers but humus in order to obtain profitable crop yields.

Formerly, mechanical power was furnished chiefly by horses raised on the farm and they were fed grain and hay, likewise raised on the farm. Only small amounts of commercial concentrates were purchased. Today automobiles furnish most of the transportation on the highways. On many dairy farms tractors supply much of the power. The out-of-pocket costs for gas, oil, tires, and operation are appreciable items of expense.

Much labor is hired to supplement family labor. Cows are milked in stanchions made from steel. Milk on many farms is cooled by mechanical refrigeration operated by electricity. These comparisons are given to emphasize the fact that farming in general and dairy farming in particular, requires large capital investments, both to establish and to operate. The cash expenses incident to dairy farming have increased greatly in amount and in proportion to all costs.

Sound Business Methods Necessary

It is going to be increasingly difficult to make a reasonable income from dairy farming under these changed conditions, except as sound business principles and practices are applied. Adjustments in the practices and programs on many dairy farms will be necessary.

On January 1, 1937, there were 20,772 members of dairy herd-improvement associations in the United States and Puerto Rico. How are these dairy farmers going to make their adjustments? Shall they use the trial and error method and risk the failures and costliness of hit and miss methods, or shall they have records taken on their own farms, which they and their agricultural leaders can use in planning more profitable farm programs?

Coordinated State and Federal Dairy Farm Record Project

The Dairy Farm Record Project was designed that members of dairy herd-improvement associations may obtain facts and figures on all sides of their farm business and so reveal additional ways to increase their net incomes.

The coordination and cooperation of already existing State and Federal agencies make it possible to extend these benefits to the more than 20,000 members of dairy herd-improvement associations at minimum cost. This project has already been introduced and its advantages extended to members of dairy herd-improvement associations in 12 States. The mimeographed publication BDIM-722, "The Dairy Farm Record Project", outlines the organization and cooperative State and Federal setup of this project. "Why Dairy Farm Records", BDIM-772, outlines the general nature of information that will be returned to cooperating States. Either of these publications may be obtained by writing to the Bureau of Dairy Industry or the Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.

DHIA PROVED-SIRE LIST

Since compiling the list of 1,553 sires that were proved in dairy herd-improvement associations 1/ prior to April 1, 1937, the Division of Dairy Herd-Improvement Investigations has tabulated the proved-sire records of an additional 376 association sires and retabulated the records of 189 that were included in the preceding list.

In an effort to make the information concerning these sires available at the earliest possible moment, this mimeographed list was prepared and distributed to the State dairy extension specialists, county agents, testers, and others having an official connection with the proved-sire program. Copies will not be available for general distribution to dairy farmers. Therefore, interested dairymen should have access to the information in the list in the local county agent's office or in the hands of the local tester.

The information in the mimeographed list will be included in the next printed list, which will be issued about April 1, 1938, and which will also include all sires proved during the previous 12 months. The annual printed lists will be available by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C.

On the next page is listed the number of sires with records included in the list BDIM-781, by States and by breeds.

1/ Miscellaneous Publication 277, List of Sires Proved in Dairy Herd-Improvement Associations, 1935-37. Copies of this list can be obtained by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy.

NUMBER OF PROVED SIRES WHOSE RECORDS ARE INCLUDED IN THE MIMEOGRAPHED LIST BDIM-731, BY STATES AND BY BREED

State	Breed						
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Short-horn	Total
Arizona	-	-	-	-	3	-	3
California	-	-	2	6	2	-	10
Connecticut	-	-	1	1	-	-	2
Idaho	-	-	2	-	1	-	3
Illinois	-	-	2	23	8	-	33
Iowa	2	3	8	22	7	1	43
Kansas	-	-	-	-	1	-	1
Kentucky	-	-	-	11	21	-	32
Maine	-	-	2	1	1	-	4
Michigan	-	-	4	7	2	-	13
Minnesota	-	4	12	10	1	1	28
Missouri	-	-	-	3	6	-	9
Montana	-	-	-	1	-	-	1
Nebraska	-	-	-	2	-	-	2
New Hampshire	3	-	5	12	1	1	22
New Jersey	-	-	-	1	-	-	1
New York	6	4	12	77	13	-	112
Ohio	-	-	2	-	2	-	4
Oregon	-	-	-	-	1	-	1
Pennsylvania	3	3	21	87	38	-	152
Texas	-	-	1	-	2	-	3
Utah	-	-	-	3	1	-	4
Vermont	3	-	6	9	20	-	38
Virginia	-	-	10	21	11	-	42
Washington	-	-	1	-	-	-	1
West Virginia	-	-	-	1	-	-	1
Total	17	14	91	298	142	3	565

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BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

Dairy Herd-Improvement Association Letter Vol. 14, No. 1.

January 1938

J. C. McDOWELL RETIRES

Dr. J. C. McDowell, who has been in charge of the Division of Dairy Herd Improvement Investigations in the Bureau of Dairy Industry since 1928, retired from the Government service December 31, 1937, after 29 years and 9 months in the U. S. Department of Agriculture.

Dr. McDowell was graduated from the College of Agriculture, University of Wisconsin, in 1903 and went immediately to the North Dakota Agricultural College as a professor in agronomy. Leaving the college April 1, 1908, he entered the U. S. Department of Agriculture as an agriculturist in farm management work. In 1916 he was transferred to the Dairy Division of the Bureau of Animal Industry, where he joined Helmer Rabild, father of the cow-testing movement in this country, in the work that has since developed into the present Division of Dairy Herd Improvement Investigations.

The cow-testing movement was in its infancy when Dr. McDowell undertook the job of compiling single-handed the statistical information on a Nation-wide basis. He has seen the movement grow from one in which the only purpose was to test the cows and weed out the low producers in individual herds to one that now provides information for proving herd sires and selecting outstanding breeding animals for improving the general level of production throughout the entire country.

1001 DHIA SIRES PROVED IN 1937

One thousand and one sires were proved in dairy herd-improvement associations during the year 1937.

Pennsylvania, by proving 216 sires, leads the States in number of sires proved in 1937. New York was second, with 209 sires.

States that proved more than 50 sires during the year are Pennsylvania, 216; New York, 209; Illinois, 96; Iowa, 75; and Vermont, 63.

A complete report of proved-sire work by States is as follows:

State	Sires proved during 1937	State	Sires proved during 1937
	Number		Number
Alabama	0	New Hampshire	47
Arizona	3	New Jersey	8
Arkansas	0	New Mexico	0
California	22	New York	209
Colorado	1	North Carolina	0
Connecticut	9	North Dakota	0
Delaware	0	Ohio	4
Florida	0	Oklahoma	2
Georgia	0	Oregon	3
Idaho	5	Pennsylvania	216
Illinois	96	Puerto Rico	0
Indiana	0	Rhode Island	0
Iowa	81	South Carolina	0
Kansas	12	South Dakota	0
Kentucky	37	Tennessee	0
Louisiana	1	Texas	4
Maine	8	Utah	6
Maryland	2	Vermont	63
Massachusetts	0	Virginia	42
Michigan	29	Washington	7
Minnesota	47	West Virginia	3
Mississippi	0	Wisconsin	0
Missouri	31	Wyoming	0
Montana	1		
Nebraska	2	Total	1,001

487,200 DHIA EARTAGS DISTRIBUTED

Up to December 31, 1937, 487,200 DHIA eartags had been distributed. Forty-five States have purchased eartags and are eartagging animals in association herds.

The following is the list of States purchasing DHIA eartags and the quantity purchased up to December 31, 1937:

State	Tags Purchased Number	State	Tags Purchased Number
Alabama	3,000	New Jersey	17,000
Arizona	2,000	New Mexico	2,000
Arkansas	1,000	New York	75,000
California	36,000	North Carolina	1,000
Colorado	5,000	North Dakota	1,000
Connecticut	2,000	Ohio	5,000
Georgia	1,000	Oklahoma	2,000
Idaho	7,000	Oregon	5,000
Illinois	20,000	Pennsylvania	59,000
Indiana	2,000	Rhode Island	2,000
Iowa	57,000	South Carolina	2,000
Kansas	12,000	South Dakota	1,000
Kentucky	5,000	Tennessee	6,000
Louisiana	2,000	Texas	6,000
Maine	10,000	Utah	3,000
Maryland	5,000	Vermont	20,000
Massachusetts	7,000	Virginia	5,000
Michigan	40,000	Washington	5,000
Minnesota	20,000	West Virginia	5,000
Mississippi	6,200	Wisconsin (uses TB tags)	
Missouri	10,000	Wyoming	1,000
Montana	2,000		
Nebraska	3,000		
New Hampshire	6,000	Total	487,200

STATUS OF DHIA IDENTIFICATION AND PERMANENT RECORD PROJECT

Since the inauguration of the identification and permanent record project, 41 States submitted for permanent recording identification records for 197,170 animals and lactation records for 60,359 cows. In relation to the number of cows on test in dairy herd-improvement associations January 1, 1937, about 40 percent of the identification records and about 12 percent of the lactation records have been reported.

Although the progress made to date is very satisfactory, the present status of the project indicates that considerable work is yet to be done before the program is completely established in every association.

The status of the project by States is shown on pages 4 and 5.

STATUS OF DHIA IDENTIFICATION AND PERMANENT RECORD PROJECT, BY STATES, DECEMBER 31, 1937

State	Associations active 1-1-37	Associations represented in new project	Cows in association herds 1-1-37	Identification records (BDIM-717) reported	Relation of identification records reported to number of cows on test in DHIA's	Production records (BDIM-718) reported	Relation of production records reported to number of cows on test in DHIA's
	Number	Number	Number	Number	Percent	Number	Percent
Ala.	3	3	1,381	257	18.6	65	4.7
Ariz.	2	2	1,201	1,133	94.3	215	17.9
Ark.	2	0	412	0	0	0	0
Calif.	59	22	84,201	6,121	7.3	2,382	2.8
Colo.	11	5	3,199	984	30.8	0	0
Conn.	15	12	9,320	1,487	16.0	566	6.1
Del.	1	0	482	0	0	0	0
Fla.	0	-	-	-	-	-	-
Ga.	1	1	596	145	24.3	0	0
Idaho	7	3	2,741	330	12.0	0	0
Ill.	59	50	22,222	20,790	93.6	4,708	21.2
Ind.	37	5	12,034	209	1.7	0	0
Iowa	54	57*	21,612	25,301	117.1	6,119	28.3
Kans.	14	13	5,836	4,551	78.0	716	12.3
Ky.	7	7	2,815	1,671	59.4	1,236	43.9
La.	7	1	3,525	61	1.7	0	0
Maine	11	10	4,014	3,461	86.2	803	20.0
Md.	14	3	5,840	136	2.3	27	.5
Mass.	13	1	8,385	316	3.8	0	0
Mich.	62	16	19,955	4,266	21.4	651	3.3
Minn.	35	25	14,137	5,161	36.5	449	3.2
Miss.	0	3*	0	245	-	0	0
Mo.	23	12	5,435	3,279	60.3	1,106	20.3
Mont.	5	0	1,491	0	0	0	0

	Number	Number	Number	Number	Percent	Number	Percent
Nebr.	18	8	3,628	891	24.6	122	3.4
Nev.	0	-	-	-	-	-	-
N. H.	9	9	5,837	4,721	80.9	2,408	41.3
N. J.	21	21	12,589	10,256	81.5	4,718	37.5
N. Mex.	1	1	530	448	84.5	419	79.1
N. Y.	105	67	61,185	21,236	34.7	7,771	12.7
N. C.	8	2	4,389	113	2.6	0	0
N. Dak.	2	2	307	106	34.5	0	0
Ohio	38	16	14,739	1,118	7.6	678	4.6
Okla.	11	7	3,190	254	8.0	34	1.1
Oreg.	17	[illegible]	10,469	797	7.6	110	1.1
Pa.	91	[illegible]	37,985	6,978	18.4	6,516	17.2
R. I.	3	0	2,610	0	0	0	0
S. C.	3	3	1,555	1,945	125.1	321	20.6
S. Dak.	2	1	959	79	8.2	0	0
Tenn.	6	9*	2,402	2,006	83.5	37	1.5
Tex.	9	6	3,459	1,238	35.8	164	4.7
Utah	4	5*	2,521	437	17.3	130	5.2
Vt.	36	34	19,083	5,630	29.5	4,393	23.0
Va.	24	24	13,468	6,791	50.4	182	1.4
Wash.	10	5	6,905	591	8.6	211	3.1
W. Va.	6	7*	1,709	1,667	97.5	327	19.1
Wis.	124	151**	55,577	49,964	89.9	12,775	23.0
Wyo.	1	0	140	0	0	0	0
P. R.	1	0	492	0	0	0	0
U. S.	992	683	496,562	197,170	39.7	60,359	12.2

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*Associations organized since 1-1-37, represented.

**Associations organized since 1-1-37, represented, and back records reported for some associations that have been discontinued.

THE DHIA PROGRAM

The dairy herd-improvement association program, with the identification and permanent-record project, is the most comprehensive dairy-cattle improvement program ever inaugurated. Its influence may be expected to reach into every section of the country.

The program consists of three simple, but important parts, each of which requires considerable field work. The success of the program on a Nation-wide basis will depend to a great extent on how well each part is conducted in each of the separate States. The three parts are:

1. The identification of all animals in association herds and the maintenance of that identification by eartagging all replacements and young stock that enter the herds.

2. The prompt reporting of production records of all association cows as they end the first 305 days of their lactation periods.

3. The complete utilization of all superior animals (particularly sires) located in association herds that their influence may be disseminated as widely as possible throughout the dairy cattle population of the Nation.

IMPROVEMENT
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WASHINGTON, D.C.

Dairy Herd-Improvement Association Letter Vol. 14 No. 2

February 1938

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DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1938

(as reported by State dairy extension specialists)

More cows are on test at the present time in dairy herd-improvement associations in the United States than ever before. On January 1, 1938 there were 23,701 herds, comprising 558,993 cows, in these associations. The previous record was 510,714 cows in 1931.

One thousand, one hundred and six dairy herd-improvement associations were in operation on January 1, 1938. This is an increase of 114, or 11.5 percent in number of associations and an increase of 62,431 or 12.6 percent in number of cows on test as compared to the number on January 1, 1937, when there were 992 associations with 496,562 cows on test. During the last year there was a net gain of 2,929 association members.

Twenty-nine States gained in number of associations and 34 States gained in number of herds on test.

California, with 85,374 cows on test, leads the States in number of cows being tested. New York is second with 65,894 cows on test and Wisconsin is third with 62,505 cows on test.

Wisconsin, with 140 associations and 3,293 herds on test, leads the States in number of associations and herds.

California, with 12.9 percent of her cows on test, has a larger percentage of cows on test than any other State.

Data on the status of dairy herd-improvement association work by States are given on the following pages.

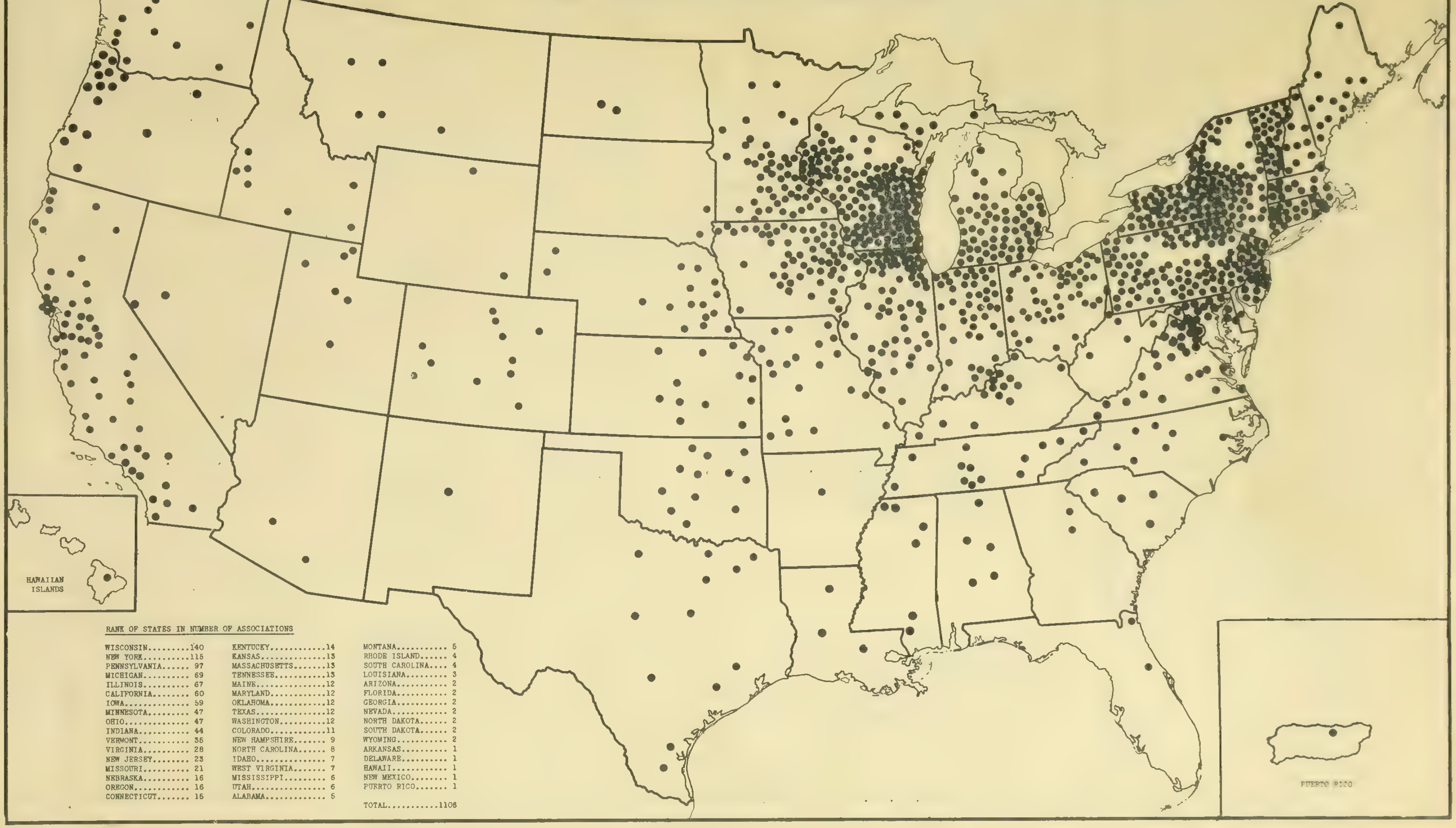
DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES
ACTIVE JANUARY 1, 1938

State	Number of associations	Number of herds	Number of cows	Average per association		Total dairy cows in U. S. 1/	Percentage of all dairy cow in D.H.I.A.'s
				Herds	Cows		
Alabama	5	42	1,890	8.4	378	415,000	0.5
Arizona	2	46	2,095	23.0	1,048	45,000	4.7
Arkansas	1	18	325	18.0	325	464,000	0.1
California	60	1,375	85,374	22.9	1,423	660,000	12.9
Colorado	11	103	3,156	9.4	287	245,000	1.3
Connecticut	15	334	9,277	22.3	618	130,000	7.1
Delaware	1	18	455	18.0	455	35,000	1.3
Florida	2	19	1,138	9.5	569	106,000	1.1
Georgia	2	36	1,279	18.0	640	386,000	0.3
Hawaii	1	7	152	7.0	152	--	--
Idaho	7	145	2,668	20.7	381	194,000	1.4
Illinois	67	1,404	26,073	21.0	389	1,123,000	2.3
Indiana	44	826	15,469	18.8	352	750,000	2.1
Iowa	59	1,379	23,332	23.4	401	1,472,000	1.6
Kansas	13	236	4,788	18.2	368	765,000	0.6
Kentucky	14	320	6,610	22.9	472	551,000	1.2
Louisiana	3	53	2,365	17.7	788	304,000	0.8
Maine	12	283	4,766	23.6	397	147,000	3.2
Maryland	12	220	5,232	18.3	436	190,000	2.8
Massachusetts	13	295	8,432	22.7	649	144,000	5.9
Michigan	69	1,534	23,398	22.2	339	905,000	2.6
Minnesota	47	1,214	21,480	25.8	457	1,721,000	1.2
Mississippi	6	137	3,702	22.8	617	561,000	0.7
Missouri	21	283	6,765	13.5	322	955,000	0.7
Montana	5	45	1,277	9.0	255	165,000	0.8
Nebraska	16	157	3,456	9.8	216	629,000	0.5
Nevada	2	31	770	15.5	385	20,000	3.8
New Hampshire	9	268	5,835	29.8	648	79,000	7.4
New Jersey	23	492	14,278	21.2	621	142,000	10.1
New Mexico	1	10	622	10.0	622	76,000	0.8
New York	115	2,694	65,894	23.4	573	1,395,000	4.7
North Carolina	8	109	4,800	13.6	600	370,000	1.3
North Dakota	2	11	481	5.5	240	538,000	0.1
Ohio	47	1,151	17,316	24.5	368	1,033,000	1.7
Oklahoma	12	109	3,536	9.1	295	713,000	0.5
Oregon	16	428	10,817	26.8	676	263,000	4.1
Pennsylvania	97	2,133	41,394	22.0	427	887,000	4.7
Puerto Rico	1	26	677	26.0	677	--	--
Rhode Island	4	79	2,679	19.8	670	23,000	11.6
South Carolina	4	62	2,296	15.5	574	172,000	1.3
South Dakota	2	44	1,019	22.0	510	513,000	0.2
Tennessee	13	244	5,961	18.8	459	553,000	1.1
Texas	12	146	4,141	12.2	345	1,444,000	0.3
Utah	6	259	3,132	43.2	522	98,000	3.2
Vermont	35	706	18,076	20.2	516	302,000	6.0
Virginia	28	433	15,807	15.5	565	403,000	3.9
Washington	12	303	8,851	25.2	738	335,000	2.6
West Virginia	7	116	2,320	16.6	331	251,000	0.9
Wisconsin	140	3,293	62,505	23.5	446	2,157,000	2.9
Wyoming	2	25	532	12.5	266	68,000	0.8
Total	1,106	23,701	558,993			24,902,000	
Average				21.4	505		2.2

1/ Estimates of the Bureau of Agricultural Economics.

DAIRY HERD-IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER ON JAN. 1. 1938---1106



RANK OF STATES IN NUMBER OF ASSOCIATIONS

WISCONSIN	140	KENTUCKY	14	MONTANA	5
NEW YORK	115	KANSAS	13	RHODE ISLAND	4
PENNSYLVANIA	97	MASSACHUSETTS	13	SOUTH CAROLINA	4
MICHIGAN	69	TENNESSEE	13	LOUISIANA	3
ILLINOIS	67	MAINE	12	ARIZONA	2
CALIFORNIA	60	MARYLAND	12	FLORIDA	2
IOWA	59	OKLAHOMA	12	GEORGIA	2
MINNESOTA	47	TEXAS	12	NEVADA	2
OHIO	47	WASHINGTON	12	NORTH DAKOTA	2
INDIANA	44	COLORADO	11	SOUTH DAKOTA	2
VERMONT	35	NEW HAMPSHIRE	9	WYOMING	2
VIRGINIA	28	NORTH CAROLINA	8	ARKANSAS	1
NEW JERSEY	23	IDAHO	7	DELAWARE	1
MISSOURI	21	WEST VIRGINIA	7	HAWAII	1
NEBRASKA	16	MISSISSIPPI	6	NEW MEXICO	1
OREGON	16	UTAH	6	PUERTO RICO	1
CONNECTICUT	15	ALABAMA	5		
				TOTAL	1106

RELATIVE POSITIONS OF THE TEN HIGH STATES IN DAIRY HERD-IMPROVEMENT ASSOCIATION WORK

(January 1, 1936, 1937, and 1938)

Rank according to number of associations

1936		1937		1938	
1. New York	96	1. Wisconsin	124	1. Wisconsin	140
2. Wisconsin	95	2. New York	105	2. New York	115
3. Pennsylvania	86	3. Pennsylvania	91	3. Pennsylvania	97
4. Illinois	63	4. Michigan	62	4. Michigan	69
5. California	56	5. California) tie	59	5. Illinois	67
6. Iowa	54	6. Illinois)	59	6. California	60
7. Michigan	51	7. Iowa	54	7. Iowa	59
8. Ohio	32	8. Ohio	38	8. Minnesota) tie	47
9. Indiana)	30	9. Indiana	37	9. Ohio)	47
10. Minnesota) tie	30	10. Vermont	36	10. Indiana	44
11. Vermont)	30				

Rank according to number of cows in associations

1936		1937		1938	
1. California	66,630	1. California	84,201	1. California	85,374
2. New York	50,864	2. New York	61,185	2. New York	65,894
3. Wisconsin	41,641	3. Wisconsin	55,577	3. Wisconsin	62,505
4. Pennsylvania	34,494	4. Pennsylvania	37,985	4. Pennsylvania	41,394
5. Illinois	20,991	5. Illinois	22,222	5. Illinois	26,073
6. Iowa	19,960	6. Iowa	21,612	6. Iowa	23,632
7. Vermont	17,165	7. Michigan	19,955	7. Michigan	23,398
8. Michigan	15,101	8. Vermont	19,083	8. Minnesota	21,480
9. Virginia	12,233	9. Ohio	14,739	9. Vermont	18,076
10. New Jersey	11,239	10. Minnesota	14,137	10. Ohio	17,316

RELATIVE POSITIONS OF THE TEN HIGH STATES IN TOTAL NUMBER OF MEMBERS IN DIARY HERD-IMPROVEMENT ASSOCIATIONS

(January 1, 1936, 1937, and 1938)

State	Number of members	State	Number of members	State	Number of members
1936		1937		1938	
1. Wisconsin	2,269	1. Wisconsin	2,896	1. Wisconsin	3,293
2. New York	2,180	2. New York	2,552	2. New York	2,694
3. Pennsylvania	1,800	3. Pennsylvania	1,946	3. Pennsylvania	2,133
4. Iowa	1,186	4. Michigan	1,333	4. Michigan	1,534
5. Illinois	1,150	5. California	1,284	5. Illinois	1,404
6. California	1,041	6. Iowa	1,266	6. Iowa	1,379
7. Michigan	1,008	7. Illinois	1,212	7. California	1,375
8. Vermont	671	8. Ohio	867	8. Minnesota	1,214
9. Ohio	662	9. Vermont	760	9. Ohio	1,151
10. Minnesota	545	10. Minnesota	755	10. Indiana	826

RELATIVE POSITIONS OF THE TEN HIGH STATES IN PERCENTAGE OF ALL COWS ON TEST IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS

(January 1, 1936, 1937, and 1938)

State	Percentage of cows on test	State	Percentage of cows on test	State	Percentage of cows on test
1936		1937		1938	
1. California	10.0	1. California	12.6	1. California	12.9
2. Rhode Island	8.4	2. Rhode Island	11.3	2. Rhode Island	11.6
3. New Jersey	8.1	3. New Jersey	8.9	3. New Jersey	10.1
4. Connecticut	6.6	4. Connecticut	7.3	4. New Hampshire	7.4
5. New Hampshire	6.2	5. New Hampshire	7.2	5. Connecticut	7.1
6. Vermont	5.9	6. Vermont	6.4	6. Vermont	6.0
7. Massachusetts	5.2	7. Massachusetts	5.9	7. Massachusetts	5.9
8. Pennsylvania	3.9	8. New York	4.5	8. Arizona	4.7)
9. New York	3.8	9. Pennsylvania	4.3	9. New York	4.7)tie
10. Virginia	3.0	10. Oregon	4.1	10. Pennsylvania	4.7)

NUMBER OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS, BY STATES

(1906-1923, inclusive)

(Up to and including 1923 data were collected on July 1. Beginning with 1924 reports were made by calendar years. Since 1925 data are of January 1)

State	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23
Michigan	1	4	2	5	4	3	4	4	3	3	10	15	7	13	14	11	17	53
Maine			3	4	3	6	5	4	5	8	11	5	1	0	0	0	3	4
New York			1	1	3	9	18	21	29	35	47	43	19	25	28	24	31	27
Vermont				2	8	10	11	17	28	33	38	47	18	12	18	17	21	20
Iowa				2	5	4	8	7	8	13	23	30	15	11	14	17	22	47
California				1	3	2	4	4	5	7	9	15	16	14	18	21	21	27
Wisconsin				9	10	10	8	11	24	37	51	81	112	105	115	103	127	151
Nebraska				1	0	0	0	3	2	3	4	4	2	2	0	0	1	4
Colorado					1	1	2	1	1	0	0	3	5	5	5	4	6	6
Pennsylvania					1	1	2	2	7	14	19	24	21	35	64	46	45	36
Ohio					1	0	0	1	4	5	20	30	24	24	41	35	36	36
Washington					1	3	1	0	0	1	12	18	11	9	6	10	10	11
Maryland						1	3	3	2	4	7	8	4	2	6	7	6	4
Illinois						4	3	2	7	3	3	17	15	27	23	25	24	23
Minnesota						3	7	10	9	11	22	26	23	21	19	23	37	55
New Hampshire						1	1	1	4	6	11	12	8	9	10	10	11	10
Oregon						1	1	1	7	11	15	17	11	6	9	5	5	4
Utah						1	0	0	1	1	0	1	1	0	1	1	1	4
Massachusetts						2	2	2	3	0	4	4	0	0	1	5	6	6
Virginia						2	2	2	0	0	2	4	4	5	8	10	12	13
Kansas								1	1	1	1	4	3	15	13	13	13	9
Indiana								2	2	3	7	9	7	10	5	10	5	10
Kentucky								1	1	0	1	1	0	0	5	5	2	3
Missouri									2	1	2	5	4	5	6	7	11	12
New Jersey									2	3	4	8	9	9	12	8	6	6
West Virginia									1	1	3	1	1	1	3	5	5	6
Connecticut									1	3	6	3	0	0	1	0	2	1
North Carolina									2	0	0	0	0	0	2	2	0	0
Louisiana									1	0	0	0	0	0	1	0	0	0
South Dakota									1	1	3	3	0	0	0	0	0	4
Nevada										1	0	1	0	0	0	1	1	4
Arizona											2	2	1	0	0	2	1	1
Rhode Island											2	2	0	0	4	4	4	3
Delaware											2	3	2	2	1	0	0	0
Idaho											2	1	1	4	5	6	4	8
Mississippi											1	0	0	0	0	3	2	1
Montana											1	2	0	0	0	0	0	2
Tennessee											1	8	4	6	3	3	4	2
New Mexico												1	0	0	0	1	1	1
Wyoming												1	0	1	0	0	0	0
Alabama													2	1	3	1	1	0
Georgia													1	0	0	0	0	0
North Dakota													1	1	1	2	6	8
Oklahoma														1	1	2	1	3
South Carolina														1	1	1	0	0
Texas														3	0	0	0	0
Arkansas															1	2	2	2
Florida																		
Puerto Rico																		
Hawaii																		
Total	1	4	6	25	40	64	82	100	163	211	346	459	353	385	468	452	513	627

NUMBER OF DAIRY HERD-IMPROVEMENT ASSOCIATIONS, BY STATES
(1925 - 1938, inclusive)

'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	State
105	108	102	105	94	90	88	69	58	51	46	51	62	69	Michigan
2	1	0	0	0	5	5	5	4	3	3	7	11	12	Maine
24	28	36	42	54	51	63	79	74	69	81	96	105	115	New York
17	23	23	25	23	23	28	29	26	27	27	30	36	35	Vermont
56	61	77	86	101	101	100	82	60	53	52	54	54	59	Iowa
20	30	35	32	32	33	31	62	60	52	52	56	59	60	California
176	169	159	166	154	142	131	96	78	69	94	95	124	140	Wisconsin
2	6	10	17	23	28	29	26	20	17	14	16	18	16	Nebraska
7	6	5	9	14	15	15	15	15	11	11	9	11	11	Colorado
42	43	49	65	76	88	83	85	86	83	84	86	91	97	Pennsylvania
21	25	28	29	39	38	37	36	31	30	27	32	38	47	Ohio
10	8	11	10	12	15	12	15	13	10	10	11	10	12	Washington
9	10	8	7	8	9	13	11	9	11	10	10	14	12	Maryland
24	26	30	34	51	59	62	57	53	52	57	63	59	67	Illinois
88	84	85	105	117	120	96	69	45	36	30	30	35	47	Minnesota
5	4	2	4	7	7	8	9	9	9	9	9	9	9	New Hampshire
7	8	9	11	14	14	16	16	14	10	9	10	17	16	Oregon
5	4	5	5	5	8	6	7	1	1	1	2	4	6	Utah
3	6	7	9	11	11	13	13	14	11	11	13	13	13	Massachusetts
15	18	18	20	20	20	20	25	28	25	33	23	24	28	Virginia
8	11	13	14	20	22	25	18	17	14	13	15	14	13	Kansas
17	25	31	34	41	51	37	32	30	30	33	30	37	44	Indiana
2	0	2	*	8	12	12	8	6	6	6	7	7	14	Kentucky
13	19	21	25	34	36	34	28	29	24	19	21	23	21	Missouri
6	9	11	17	18	16	15	17	16	17	18	19	21	23	New Jersey
3	3	3	4	6	7	9	6	5	6	6	6	6	7	West Virginia
1	2	4	5	3	4	4	2	2	2	8	13	15	15	Connecticut
2	5	5	5	8	7	7	8	9	7	6	6	8	8	North Carolina
0	0	1	2	2	2	3	2	6	5	4	11	7	3	Louisiana
11	9	10	8	14	12	12	7	4	4	3	2	2	2	South Dakota
3	1	3	0	1	0	0	0	0	0	0	1	0	2	Nevada
2	1	1	2	3	4	3	2	2	2	2	2	2	2	Arizona
0	0	0	0	1	1	1	2	2	3	3	3	3	4	Rhode Island
0	0	0	0	1	1	1	1	1	1	1	1	1	1	Delaware
8	8	9	12	13	13	12	10	5	4	4	5	7	7	Idaho
1	2	0	1	1	2	3	3	2	1	0	0	0	6	Mississippi
4	3	7	7	8	9	9	8	6	4	4	4	5	5	Montana
2	2	2	3	7	10	10	8	8	6	4	3	6	13	Tennessee
0	1	1	2	2	1	1	1	1	1	1	1	1	1	New Mexico
1	0	0	0	1	1	1	1	1	1	1	1	1	2	Wyoming
0	0	1	3	4	7	6	4	3	2	1	0	3	5	Alabama
0	0	1	1	2	1	0	1	1	0	1	1	1	2	Georgia
5	3	6	4	7	9	9	5	7	5	1	2	2	2	North Dakota
5	5	5	12	22	25	21	20	15	15	12	13	11	12	Oklahoma
0	0	0	0	1	3	2	0	1	1	1	1	3	4	South Carolina
0	0	1	3	6	7	5	5	3	2	3	5	9	12	Texas
0	0	0	2	*	1	3	*	1	0	0	0	2	1	Arkansas
				1	2	0	0	0	0	0	0	0	2	Florida
												1	1	Puerto Rico
													1	Hawaii
732	777	837	947	1090	1143	1112	1005	881	793	809	876	992	1106	Total

*No report.

GROWTH OF DAIRY HERD-IMPROVEMENT ASSOCIATION WORK IN THE UNITED STATES

(1906 - 1938, inclusive)

Year	No. of ass'ns.	No. of cows on test	Ave. b'f of cow
1906	1	239	21
1907	4	1,606	220
1908	6	3,921	–
1909	25	11,686	–
1910	40	25,000 1/	–
1911	64	40,000 1/	–
1912	82	43,000 1/	–
1913	100	47,150	–
1914	163	73,280	–
1915	211	105,526	–
1916	346	150,677	–
1917	459	216,831	–
1918	353	172,518	–
1919	385	167,313	–
1920	468	203,472	[illegible]
1921	452	193,928	–
1922	513	215,321	–
1923	627	277,010	–
2/ 1924			
1925	732	307,073	28
1926	777	327,653	28
1927	837	362,014	[illegible]
1928	947	414,891	[illegible]
1929	1,090	465,804	2
1930	1,143	507,549	3
1931	1,112	510,714	30
1932	1,005	427,044	[illegible]
1933	881	358,501	31
1934	793	325,837	32
1935	809	364,218	322
1936	876	404,412	319
1937	992	496,562	–
1938	1,106	558,993	–

1/ Estimated.

2/ Date for collecting data changed in 1924 from July 1 to January 1.

NUMBER OF HERDS ON TEST JANUARY 1, 1937, COMPARED TO THE NUMBER ON TEST JANUARY 1, 1938, BY STATES

State	Number of herds on test		Herds on test Jan.1,1938 in percentage of herds on test Jan. 1, 1937	Increase (+) or decrease (-) in number of herds on test
	Jan.1,1937	Jan.1,1938		
Nevada	0	31	-	+ 31
Florida	0	19	-	+ 19
Mississippi	0	137	-	+ 137
Hawaii	0	7	-	+ 7
Wyoming	7	25	357.1	+ 18
Georgia	13	36	276.9	+ 23
Tennessee	102	244	239.2	+ 142
Kentucky	137	320	233.6	+ 183
Minnesota	755	1,214	160.8	+ 459
Arizona	29	46	158.6	+ 17
Utah	178	259	145.5	+ 81
Alabama	30	42	140.0	+ 12
West Virginia	85	116	136.5	+ 31
South Carolina	46	62	134.8	+ 16
Ohio	867	1,151	132.8	+ 284
Missouri	216	283	131.0	+ 67
Washington	232	303	130.6	+ 71
Indiana	671	826	123.1	+ 155
Texas	121	146	120.7	+ 25
Maine	239	283	118.4	+ 44
New Jersey	419	492	117.4	+ 73
Virginia	372	433	116.4	+ 61
Illinois	1,212	1,404	115.8	+ 192
Michigan	1,333	1,534	115.1	+ 201
Wisconsin	2,896	3,293	113.7	+ 397
North Dakota	10	11	110.0	+ 1
Pennsylvania	1,946	2,133	109.6	+ 187
North Carolina	100	109	109.0	+ 9
Iowa	1,266	1,379	108.9	+ 113
Puerto Rico	24	26	108.3	+ 2
California	1,284	1,375	107.1	+ 91
Delaware	17	18	105.9	+ 1
New York	2,552	2,694	105.6	+ 142
Rhode Island	75	79	105.3	+ 4
South Dakota	44	44	100.0	0
New Mexico	10	10	100.0	0
New Hampshire	269	268	99.6	- 1
Massachusetts	301	295	98.0	- 6
Connecticut	347	334	96.3	- 13
Maryland	234	220	94.0	- 14
Vermont	760	706	92.9	- 54
Oklahoma	124	109	87.9	- 15
Idaho	168	145	86.3	- 23
Oregon	498	428	85.9	- 70
Arkansas	21	18	85.7	- 3
Colorado	121	103	85.1	- 18
Kansas	283	236	83.4	- 47
Nebraska	193	157	81.3	- 36
Montana	56	45	80.4	- 11
Louisiana	109	53	48.6	- 56
Total	20,772	23,701		+2,929
Average			114.1	

COMPARISON OF NUMBER OF HERDS ON TEST IN DAIRY HERD-IMPROVEMENT ASSOCIATIONS WITH NUMBER OF HERDS OF 11 COWS OR MORE IN THE UNITED STATES, BY STATES

(The following tabulation shows the number of herds of 11 cows or more in the various States, the number of herds of all sizes on test, and the number of additional herds needed to make the total number of herds on test equal to 10 percent of the herds of 11 cows or more)

State	Herds of 11 cows or more*	All herds on test in DHIA's Jan.1,1938	Relation of all herds on test to the number of herds of 11 cows or more	Herds needed to make the total herds on test equal to 10 percent of the herds having 11 cows or more
	Number	Number	Percent	Number
Utah	1,767	259	14.7	--
Mich.	10,730	1,534	14.3	--
N.J.	3,500	492	14.1	--
N.H.	1,910	268	14.0	--
Va.	3,205	433	13.5	--
Maine	2,245	283	12.6	--
R.I.	685	79	11.5	--
Ind.	7,225	826	11.4	--
Pa.	19,315	2,133	11.0	--
Ohio	10,510	1,151	11.0	--
Conn.	3,175	334	10.5	--
S.C.	630	62	9.8	1
Calif.	14,350	1,375	9.6	60
Ky.	3,510	320	9.1	31
Oreg.	5,165	428	8.3	88
Ill.	17,005	1,404	8.3	296
N.C.	1,360	109	8.0	27
W.Va.	1,498	116	7.7	34
Mass.	4,015	295	7.3	107
Vt.	9,740	706	7.2	268
N.Y.	44,650	2,694	6.0	1,771
Tenn.	4,105	244	5.9	166
Ariz.	800	46	5.8	34
Md.	4,330	220	5.1	213
Nev.	615	31	5.0	31
Idaho	3,025	145	4.8	157
Wash.	6,340	303	4.8	331
Iowa	29,940	1,379	4.6	1,615
Miss.	2,985	137	4.6	161
Wis.	80,020	3,293	4.1	4,709
La.	1,450	53	3.7	92
Ala.	1,535	42	2.7	112
Mo.	10,980	283	2.6	815
Minn.	47,785	1,214	2.5	3,564
Del.	727	18	2.5	55
Kans.	10,085	236	2.3	772
Fla.	865	19	2.2	67
Colo.	4,935	103	2.1	391
Wyo.	1,318	25	1.9	107
Nebr.	8,880	157	1.8	731
Okla.	6,505	109	1.7	541
Ga.	2,120	36	1.7	176
Tex.	9,090	146	1.6	763
Mont.	2,980	45	1.5	253
Ark.	1,455	18	1.2	128
N.Mex.	1,050	10	1.0	95
S.Dak.	11,330	44	.4	1,089
N.Dak.	10,620	11	.1	1,051
U.S.	432,060	23,668	5.5	19,538

*1932 estimates of the Bureau of Agricultural Economics.

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NEW JERSEY.....G.E.Taylor, Ext. Service, State College of Agr., New Brunswick.
NEW MEXICO.....E.E.Anderson, Ext. Service, N.M. College of Agr., State College.
NEW YORK.......W.T.Crandall, Ext. Service, New York State College of Agr.,Ithaca.
NORTH CAROLINA.J.A.Arey, Ext. Service, North Carolina State College of Agr., State College Station, Raleigh.
NORTH DAKOTA...E.J.Haslerud, Agr. Ext., North Dakota Agr. College, Fargo.
OHIO...........Ivan McKellip, Agr. Ext. Work, College of Agr., Columbus.
OKLAHOMA.......J.W.Boehr, Ext. Service, Oklahoma A. & M. College, Stillwater.
OREGON.........R.W.Morse, Ext. Service, Oregon State College, Corvallis.
PENNSYLVANIA...C.R.Gearhart, Agr. Ext., School of Agr., State College.
I.O.Sidelmann, Agr. Ext., School of Agr., State College.
PUERTO RICO....Frank Pico, Ext. Service, College of Agr., Mayaguez.
RHODE ISLAND...J.E.Ladd, Ext. Service, School of Agr., Kingston.
SOUTH CAROLINA.C.G.Cushman, Ext. Service, Clemson Agr. College, Clemson College.
SOUTH DAKOTA...R.A.Cave, Ext. Service, South Dakota State College of Agr.,Brookings.
TENNESSEE......C.A.Hutton, Ext. Dairyman, Box 1071, Knoxville.
TEXAS..........G.G.Gibson, Ext. Service, A. & M. College of Texas, College Station.
UTAH...........L.H.Rich, Ext. Division, Utah State Agr. College, Logan.
VERMONT........E.H.Loveland, Ext. Service, College of Agr., Burlington.
VIRGINIA.......R.W.Dickson, Ext. Division, Virginia A. & M. College, Blacksburg.
WASHINGTON.....O.J.Hill, Ext. Division, State College of Washington, Pullman.
WEST VIRGINIA..G.Heebink, Dept. of Dairy Husbandry, College of Agr., Morgantown.
WISCONSIN......G.W.Vergeront, Farm Accounts & Dairy Records Office, College of Agr., Madison.
WYOMING........Anton Fellhauer, Ext. Division, College of Agr., Laramie.

J. F. KENDRICK IS NAMED CHIEF OF DAIRY HERD IMPROVEMENT DIVISION

O. E. Reed, Chief of the Bureau of Dairy Industry has announced the appointment of Dr. J. F. Kendrick as Chief of the Division of Dairy Herd Improvement Investigations. He succeeds Dr. J. C. McDowell who retired last December after about 30 years service in the Department of Agriculture.

Doctor Kendrick has been Assistant Chief of the Division for the last 3 years, during which time he organized the sire-proving work on the present Nation-wide uniform basis and established the Bureau's permanent-record system for recording the identity, family history, and production performance of all animals that are enrolled in the dairy herd-improvement associations.

Doctor Kendrick, born and reared on an Ohio farm, was graduated from Ohio State University in 1926. He received his Masters degree there in 1927, and his Doctor of Philosophy degree from American University in 1935, for work in economics, statistics, and biometrics. He spent 3 1/2 years as county agent in Champaign county, Ohio, and joined the Bureau in 1933.

IMPROVEMENT
DAIRY HERD ASSOCIATIONS
HERD BOOK
TEST THE COWS PROVE THE BULLS
BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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UNIVERSITY OF ILLINOIS

Dairy Herd-Improvement Association Letter Vol. 14 No. 3

March 1938

COOPERATIVE DAIRY BULL ASSOCIATIONS IN THE UNITED STATES ACTIVE JANUARY 1, 1938

(as reported by State dairy extension specialists)

One hundred and sixty-six cooperative dairy bull associations were in active operation on January 1, 1938. These associations had a total membership of 2,561 dairymen owning cooperatively 734 dairy bulls. Thirty-four new associations were organized during 1937.

Pennsylvania, with 50 associations, leads the States in number of associations. New York is second with 29 associations, Illinois is third with 24, and New Jersey is fourth with 14 associations. Data on the status of bull association work by States are given on the following page.

Sound Organizations

All associations listed have the facilities for conducting a progressive, long-time, dairy-cattle breeding program. They are completely organized and have the necessary officers to conduct the business of the associations properly. Many of the associations are incorporated. At least one meeting of the membership is held each year. Each association has three or more blocks, in each of which is placed a bull owned by the association (not by individual members).

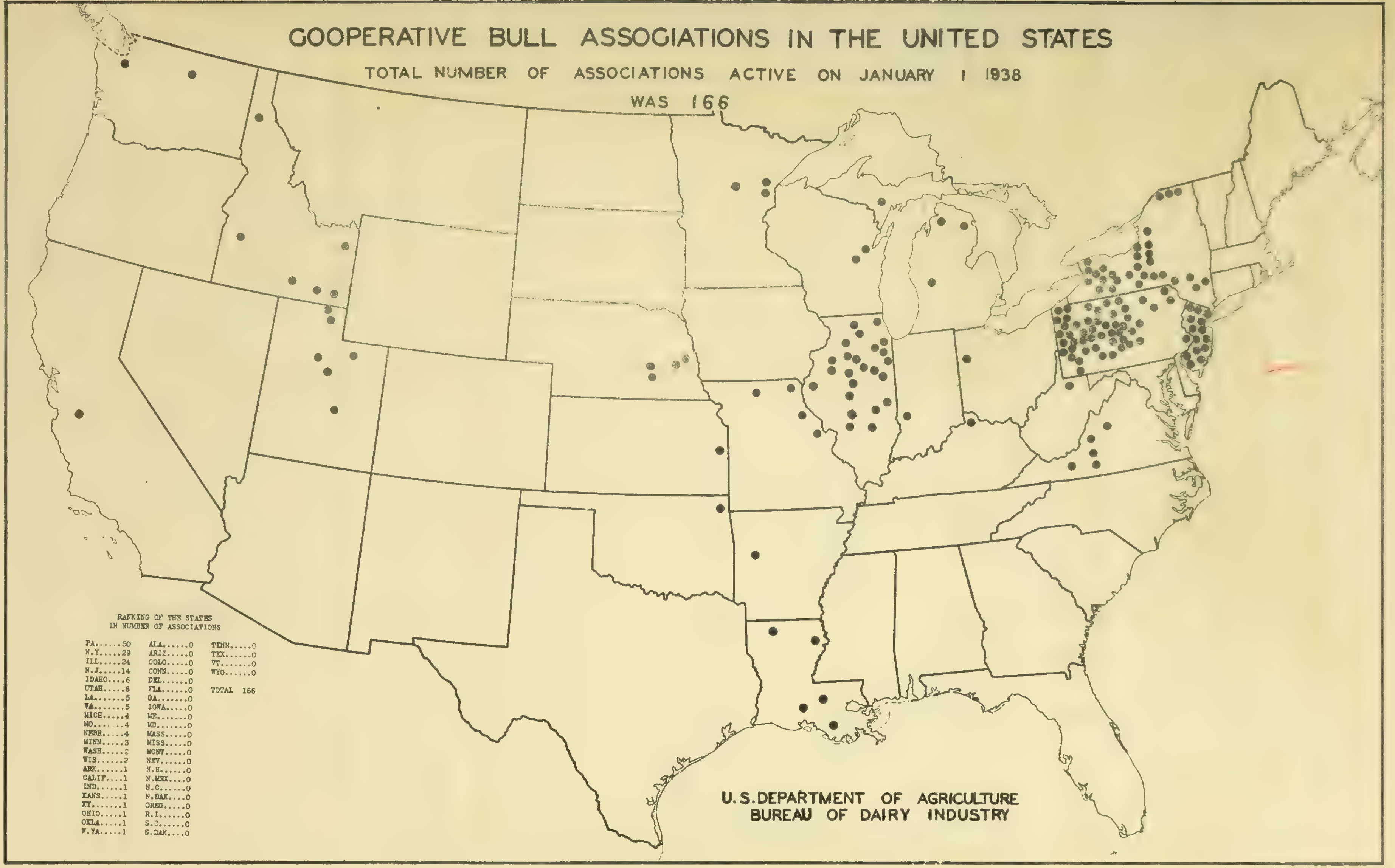
When an association meets the above standards it is usually capable of rendering efficient service to its membership year after year. Too often cooperative bull associations are loosely organized and the business affairs of the organization are neglected, with the result that the organization operates for only a few years and then disintegrates.

Although the members of a defunct bull association seldom, if ever lose money because of the failure, they are deprived of the opportunity of benefiting from a long-time dairy-cattle breeding program.

Cooperative Dairy Bull Associations in the United States
Active January 1, 1938

State	Number of associations	Number of members	Number of bulls	Breed of bulls used 1/						Number of cows in all associations		
				A	J	G	H	BS	SH	Reg.	Other	Total
Alabama	0											
Arizona	0											
Arkansas	1	88	5		5					0	308	308
California	1	12	20		20					121	732	853
Colorado	0											
Connecticut	0											
Delaware	0											
Florida	0											
Georgia	0											
Idaho	6	158	33		5	2	26			245	837	1,082
Illinois	24	109	97		37	21	29	10		818	900	1,718
Indiana	1	40	7		7					100	200	300
Iowa	0											
Kansas	1	3	3				3			15	27	42
Kentucky	1	4	5		5					24	53	77
Louisiana	5	586	37		37					140	1,584	1,724
Maine	0											
Maryland	0											
Massachusetts	0											
Michigan	4	51	13			6	3		4	104	334	438
Minnesota	3	212	26			25	1			82	1,874	1,956
Mississippi	0											
Missouri	4	65	29		15	11	3			80	632	712
Montana	0											
Nebraska	4	90	24		4		20			175	395	570
Nevada	0											
New Hampshire	0											
New Jersey	14	57	57			12	45			606	726	1,332
New Mexico	0											
New York	29	141	122		10	23	89			3,101	1,305	4,406
North Carolina	0											
North Dakota	0											
Ohio	1	19	3			3				107	48	155
Oklahoma	1	12	3		3					7	94	101
Oregon	0											
Pennsylvania	50	297	181	3	36	51	87	4		3,911	2,717	6,628
Rhode Island	0											
South Carolina	0											
South Dakota	0											
Tennessee	0											
Texas	0											
Utah	6	412	22		8		14			120	1,441	1,561
Vermont	0											
Virginia	5	28	23			9	14			251	813	1,064
Washington	2	157	12			12				2	510	512
West Virginia	1	12	4		4					101	103	204
Wisconsin	2	8	8			8				200	35	235
Wyoming	0											
Total	166	2,561	734	3	196	183	334	14	4	10,310	15,668	25,978

1/ A - Ayrshire; J - Jersey; G - Guernsey; H - Holstein; SH - Shorthorn; BS - Brown Swiss.



COOPERATIVE BULL ASSOCIATIONS IN THE UNITED STATES

TOTAL NUMBER OF ASSOCIATIONS ACTIVE ON JANUARY 1 1938 WAS 166

RANKING OF THE STATES
IN NUMBER OF ASSOCIATIONS

PA.	50
N.Y.	29
ILL.	24
N.J.	14
IDAHO	6
UTAH	6
LA.	5
VA.	5
MICH.	4
MO.	4
NEBR.	4
MINN.	3
WASH.	2
WIS.	2
ARK.	1
CALIF.	1
IND.	1
KANS.	1
KY.	1
OHIO	1
OKLA.	1
W.VA.	1
ALA.	0
ARIZ.	0
COLO.	0
CONN.	0
DEL.	0
FLA.	0
GA.	0
IOWA	0
ME.	0
MD.	0
MASS.	0
MISS.	0
MONT.	0
NEV.	0
N.H.	0
N.MEX.	0
N.C.	0
N.DAK.	0
OREG.	0
R.I.	0
S.C.	0
S.DAK.	0
TENN.	0
TEX.	0
VT.	0
WYO.	0
TOTAL	166

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF DAIRY INDUSTRY

How Long Does a Bull Association Live?

The life of a bull association usually depends upon how carefully it has been organized and how well it is managed and operated. One association in Michigan has been in operation for 28 years. Of the 166 associations reported active January 1, 1938, 36 have operated for 10 or more years. The following table shows in a general way the longevity of cooperative bull associations:

Number of Bull Associations Active January 1, 1938, Grouped By Years In Which They Were Organized, and By Number of Blocks in the Associations

Year organized	Number of associations organized	Number of associations with --			
		3 blocks	4 blocks	5 blocks	More than 5 blocks
1937	34	11	20	3	0
1936	33	7	11	10	5
1935	17	7	6	1	3
1934	11	6	3	2	0
1933	11	3	2	4	2
1932	5	0	2	1	2
1931	4	1	2	0	1
1930	1	1	0	0	0
1929	3	2	0	0	1
1928	8	4	1	2	1
1927	7	3	4	0	0
1926	5	2	2	0	1
1925	4	1	3	0	0
1924	3	2	1	0	0
1923	3	1	1	0	1
1922	9	4	3	1	1
1921	0	0	0	0	0
1920	1	0	0	1	0
1919	3	1	0	0	2
************					
1909	1	1	0	0	0
No report	3	2	1	0	0
Total	166	59	62	25	20

Why Should A Bull Association Consist of Three or More Blocks?

A bull association, to be successful, must have the facilities to conduct a planned long-time breeding program. If an organization consists of less than three blocks, new bulls must be purchased more frequently to prevent inbreeding. Five blocks in each association is to be preferred in order that the average bull may spend his entire life in the association. It may be noted in the above table that most of the associations now active consist of three or four blocks. There is no fixed number of blocks necessary, however, for a bull association to be successful. This is shown in the following table:

Number of Bull Associations Grouped by Number of Blocks in the Associations, in the Four States Having Largest Number of Associations

State	Number of associations	Number of Associations with -- 3 blocks	4 blocks	5 blocks	More than 5 blocks
Pennsylvania	50	26	18	2	4
New York	29	15	8	5	1
Illinois	24	4	13	6	1
New Jersey	14	3	7	4	0

How Many Members Should There be in Each Block?

The number of members in each block depends entirely upon the wishes of the membership. A dairyman with a large herd often wishes to make up one block of the association alone in order to have a bull on his own farm. Dairymen with smaller herds usually like to join other dairymen with herds of similar size in making up a block in order to reduce the cost.

In the four States having the largest number of bull associations, the number of blocks having one member and the number of blocks having more than one member is shown in the following table:

State	Number of Associations with -- One member to each block	More than one member to each block
Pennsylvania	25	25
New York	16	13
Illinois	21	3
New Jersey	14	0

Why Should Bull Associations be Incorporated?

It is recommended that bull associations be incorporated for the following reasons:

1. An incorporated bull association insures the legal protection of members.
2. An incorporated association is likely to be more carefully organized and the affairs of the association are more often handled in a business-like manner than if the association is not incorporated.
3. An incorporated association is a separate entity. It is more likely to live a greater number of years than a loosely organized association, which in many respects resembles a partnership that usually lives only during the time the original members are active.

Why Should Members of Bull Associations Hold Annual Meetings?

An association that does not hold a meeting annually is usually disintegrating. Association meetings are important and necessary to: (1) Maintain interest in the association. (2) Properly conduct the business affairs of the association. (3) Keep the membership informed of the progress being made. (4) Develop in the membership a thorough understanding of the progressive long-time breeding program planned and being carried out in each herd in the association.

Progressive Developments

During recent years the facilities of bull associations have been used to "sample" young bulls. The purpose being to determine the breeding value of a bull before he is used extensively in the association herds. In New York, for example, the "spare" bull plan is used in a number of associations. Briefly, the plan is as follows:

After the association is in operation and a bull has been assigned to each block, the association buys a young bull to be used as a "spare." As soon as the spare bull reaches breeding age he is circulated at definite periods so as to make the entire circuit of the blocks in the association each year. Each member agrees to use the young bull on young heifers and an occasional cow in order to have a representative sample of his heifer calves. This arrangement provides a sample of the young bull's daughters at a minimum risk to any one herd in the association. As soon as the daughters of the bull have completed their first lactation records the directors of the association decide upon the merits of the bull, basing their judgment on records of daughters in each of the association herds, rather than in only one of the herds. When the spare bull takes a place in the regular circuit of the association a new spare bull is purchased and tried out.

Another development which gives great promise is that of using artificial insemination to increase the usefulness of outstanding sires. Denmark, for example, has one association with 220 herds in which artificial insemination is practiced almost exclusively. During the first year the association operated, approximately 1,200 cows were artificially inseminated. Only 2 bulls were used.

Although this Denmark association operated more or less as an experiment the first year, the Danes soon recognized several advantages in the organized use of artificial insemination; some of the more important being:

1. Increases the usefulness of superior sires and spreads their influence.
2. Reduces cost per service.
3. Eliminates the necessity of keeping and feeding a bull on each farm.
4. Quickly establishes a large family of cattle.
5. Measures the genetic ability of sires quickly and effectively.
6. Practically eliminates the danger of spreading disease through service.

Mr. E. J. Perry, Extension Dairyman, New Jersey State College of Agriculture, visited Denmark a year ago and brought back to this country the story of this Danish association which employs the technique of artificial insemination. He has already developed plans for the establishment of a similar organization in one of New Jersey's leading dairy districts.

Bull Association Leaflet

The Division of Dairy Herd Improvement Investigations has prepared BDIM-691, "Organizing Cooperative Dairy Bull Associations", to supply extension workers with information on organizing bull associations. For copies write to the Bureau of Dairy Industry, U. S. Department of Agriculture, Washington, D. C.

DAIRY HERD IMPROVEMENT ASSOCIATIONS

TEST THE COWS

PROVE THE BULLS

BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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MAY 4 1938
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COLLEGE OF AGRICULTURE

Dairy Herd-Improvement Association Letter Vol. 14 No. 4

April 1938

STATUS OF THE IDENTIFICATION AND PERMANENT RECORD PROJECT

Up to January 1, 1938, 41 States had submitted, for permanent recording, identification records for 197,170 animals and production records for 60,359 cows. Between January 1 and April 1, 1938, identification records for 48,911 animals, and production records for 21,801 cows, have been reported. These data indicate that considerable progress has been made toward establishing the identification and permanent-record project throughout the country. Although the progress made is gratifying, a great amount of work is yet to be done before the project is completely established in every association.

The status of the project by States is shown in the table on pages 2 and 3. In referring to this table it should be recognized that the data on the number of identifications reported are not comparable for the various States inasmuch as some States reported identification records for a large proportion of their association animals last year. Naturally, those States have fewer identification records to report this year.

In regard to the number of production records reported, if every association cow that completed a 305-day lactation record between January 1 and April 1 had been reported, the number would represent approximately 25 percent of the total number of cows on test. As revealed by the table it is obvious that most association testers have not as yet established a routine whereby the lactation records are reported promptly as they are completed. In the table on page 4 the States are listed according to the percentage of production records that have been reported. Only five States have reported records for a total number of cows equal to more than 10 percent of the cows tested. They are: New Mexico, 14.6%; Kansas, 12.6%; New Jersey, 11.8%; Virginia, 11.5%; and South Carolina, 11.1%.

STATUS OF DHIA IDENTIFICATION AND PERMANENT RECORD PROJECT, BY STATES, JANUARY 1, 1938 to APRIL 1, 1938

State	Associations active 1-1-38	Associations represented in the project	Cows in association herds 1-1-38	Identification records (BDIM-717) reported	Relation of identification records reported to number of cows on test in DHIA'S	Production records (BDIM-718) reported	Relation of production records reported to number of cows on test in DHIA'S
	Number	Number	Number	Number	Percent	Number	Percent
Ala.	5	3	1,890	6	.3	37	2.0
Ariz.	2	2	2,095	51	2.4	36	1.7
Ark.	1	0	325	0	0	0	0
Calif.	60	9	85,374	539	.6	520	.6
Colo.	11	4	3,156	722	22.9	161	5.1
Conn.	15	8	9,277	130	1.4	231	2.5
Del.	1	0	455	0	0	0	0
Fla.	2	0	1,138	0	0	0	0
Ga.	2	0	1,279	0	0	0	0
Hawaii	1	0	152	0	0	0	0
Idaho	7	3	2,668	236	8.8	0	0
Ill.	67	42	26,073	2,852	10.9	2,350	9.0
Ind.	44	2	15,469	123	.8	0	0
Iowa	59	46	23,632	2,443	10.3	2,020	8.5
Kans.	13	11	4,788	1,072	22.4	601	12.6
Ky.	14	5	6,610	260	3.9	191	2.9
La.	3	1	2,365	17	.7	0	0
Maine	12	6	4,766	607	12.7	391	8.2
Md.	12	2	5,232	18	.3	21	.4
Mass.	13	3	8,432	377	4.5	13	.2
Mich.	69	16	23,398	1,361	5.8	234	1.0
Minn.	47	17	21,480	1,731	8.1	473	2.2
Miss.	6	4	3,702	1,049	28.3	103	2.8
Mo.	21	16	6,765	1,010	14.9	217	3.2

Number	Number	Number	Number	Percent	Number	Percent
Mont..........5	0	1,277	0	0	0	0
Nebr.........16	9	3,456	346	10.0	165	4.8
Nev...........2	0	770	0	0	0	0
N.H...........9	7	5,835	214	3.7	278	4.8
N.J..........23	21	14,278	1,516	10.6	1,680	11.8
N.Mex.........1	1	622	0	0	91	14.6
N.Y.........115	45	65,894	3,029	4.6	2,399	3.6
N.C...........8	4	4,800	293	6.1	0	0
N.Dak.........2	0	481	0	0	0	0
Ohio.........47	23	17,316	2,081	12.0	717	4.1
Okla.........12	2	3,536	41	1.2	51	1.4
Oreg.........16	0	10,817	0	0	0	0
Pa...........97	21	41,394	831	2.0	1,060	2.6
P.R...........1	0	677	0	0	0	0
R.I...........4	0	2,679	0	0	0	0
S.C...........4	4	2,296	1,099	47.9	255	11.1
S.Dak.........2	2	1,019	101	9.9	11	1.1
Tenn.........13	11	5,961	1,485	24.9	200	3.4
Tex..........12	4	4,141	354	8.5	52	1.3
Utah..........6	5	3,132	566	18.1	158	5.0
Vt...........35	24	18,076	1,605	8.9	1,349	7.5
Va...........28	21	15,807	2,552	16.1	1,810	11.5
Wash.........12	6	8,851	1,281	14.5	434	4.9
W.Va..........7	3	2,320	175	7.5	49	2.1
Wis.........140	116	62,505	16,738	26.8	3,443	5.5
Wyo...........2	0	532	0	0	0	0
U.S......1,106	529	558,993	48,911	8.7	21,801	3.9

NUMBER AND PERCENTAGE OF PRODUCTION RECORDS REPORTED, BY STATES
(January 1 to April 1, 1938)

State	Cows in association herds 1-1-38	Production records (BDIM-718) reported	Relation of production records reported to number of cows on test in DHIA'S	State	Cows in association herds 1-1-38	Production records (BDIM-718) reported	Relation production records reported to number of cows on test in DHIA'S
	Number	Number	Percent		Number	Number	Percent
N.Mex.	622	91	14.6	Ariz.	2,095	36	1.7
Kans.	4,788	601	12.6	Okla.	3,536	51	1.4
N.J.	14,278	1,680	11.8	Texas	4,141	52	1.3
Va.	15,807	1,810	11.5	S. Dak.	1,019	11	1.1
S.C.	2,296	255	11.1	Mich.	23,398	234	1.0
Ill.	26,073	2,350	9.0	Calif.	85,374	520	.6
Iowa	23,632	2,020	8.5	Md.	5,232	21	.4
Maine	4,766	391	8.2	Mass.	8,432	13	.2
Vt.	18,076	1,349	7.5				
Wis.	62,505	3,443	5.5	Ark.	325	0	0
Colo.	3,156	161	5.1	Del.	455	0	0
Utah	3,132	158	5.0	Fla.	1,138	0	0
				Ga.	1,279	0	0
Wash.	8,851	434	4.9	Hawaii	152	0	0
Nebr.	3,456	165	4.8	Idaho	2,663	0	0
N.H.	5,835	278	4.8	Ind.	15,469	0	0
Ohio	17,316	717	4.1	La.	2,365	0	0
N.Y.	65,894	2,399	3.6	Mont.	1,277	0	0
Tenn.	5,961	200	3.4	Nev.	770	0	0
Mo.	6,765	217	3.2	N.C.	4,800	0	0
Ky.	6,610	191	2.9	N.Dak.	481	0	0
Miss.	3,702	103	2.8	Oreg.	10,817	0	0
Pa.	41,394	1,060	2.6	P.R.	677	0	0
Conn.	9,277	231	2.5	R.I.	2,679	0	0
Minn.	21,481	473	2.2	Wyo.	532	0	0
W.Va.	2,320	49	2.1				
Ala.	1,890	37	2.0	Total	558,993	21,801	3.9

Reporting Identification and Production Records for Permanent Recording

Identification and production records are flowing into the permanent record system from all sections of the country at the rate of 1,100 to 1,200 daily. For the most part the records submitted are in a very satisfactory condition. Some errors and discrepancies, however, continue to appear from time to time in the data received. In order to save the tester's time in reporting data, correcting errors, and supplying further information on certain records, the attention of all testers should be called to the following items:

1. Write plainly. Use ink, preferably black or blue-black.

2. Carefully copy identification numbers (registration or eartag).

    a. Avoid transposition and omission of digits.
    b. Indicate if the registration numbers of Holstein animals are issued by the Holstein-Friesian Registry Association, Harrisburg, Pennsylvania. This is necessary in order to avoid confusing numbers issued by this association with those issued by the Holstein-Friesian Association of America. If an animal is registered in both associations report both registration numbers.
    c. Indicate all foreign registration and eartag numbers.
    d. Report both registration and eartag number if registered animal is eartagged.
    e. Report the prefix to eartag numbers. (Examples - In reporting the DHIA eartag number 45-A5606, do not omit the "45" or the "A". In reporting disease eartag numbers, report the number in full as Ohio BX9856. Do not omit the name of the State "Ohio" or the letter prefix "BX".)
    f. Do not report private herd eartag numbers or names.

3. Carefully copy the correct birth dates and freshening dates.

    a. Report complete birth dates when possible, otherwise give at least the season and year of birth.

4. Make a note in the farmer's herd-record book giving the date data were reported on BDIM-717 and BDIM-718. This prevents records being reported twice as well as insures that all data are reported.

5. Indicate on BDIM-717 and BDIM-718 as "corrected" all data correcting errors or discrepancies in data previously reported.

6. Use only one name to designate a farm from which data are reported. (If the dairyman has more than one farm, or a manager, or a special name for the farm select one name and use only that name in reporting data.)

7. Discontinue reporting dam-and-daughter data on form BDIM-672. Data reported on this form are not sufficiently complete to be

included in the permanent record system. Until form BDIM-718 is used for reporting data the sire-proving program is no farther advanced than it was before the identification and permanent record project was inaugurated.

8. Report all records promptly. Establish a routine whereby all available identification and production records are reported each visit to each farm.

9. Follow explicitly the instructions in BDIM-720, "Recording the Identity and Production Performance of All Animals In Dairy Herd-Improvement Associations."

FINGERPRINTS AND EARTAGS

Fingerprinting arrested persons and forwarding the prints to a central office in the Federal Bureau of Investigation is proving an effective means for identifying and ridding States of enemies of society. The various States and the Bureau of Investigation cooperate in this work and are achieving spectacular results in the identification and apprehension of criminals.

For a different but valuable purpose the various States and the Bureau of Dairy Industry cooperate in eartagging, or otherwise permanently indicating the identity of all animals in dairy herd-improvement associations, in a program of identifying the individual dairy animals and families of dairy animals that are enemies of profitable dairy farming. The purpose of the identification and permanent-record program is not only to apprehend these dairy criminals, but to eliminate their unfavorable influence in the breeding of future generations of dairy cattle.

It is generally recognized that permanent improvement in the inherent producing ability of dairy cattle can be accomplished only by a continuous, broad, progressive dairy herd-improvement program. Through the identification and permanent-record project all animals in dairy herd-improvement association herds are identified and their identification records, along with the production records of all cows tested, are permanently recorded. The records are analyzed to identify the individuals and families that possess the ability to transmit to their offspring an inheritance for high milk- and butterfat-producing ability. The influence of these superior individuals and families may then be disseminated throughout the general dairy-cow population. Through the present broad dairy herd-improvement association program the low-producing unprofitable cows can be eliminated.

DAIRY HERD IMPROVEMENT ASSOCIATIONS
TEST THE COWS — HERD BOOK — PROVE THE BULLS
BUREAU OF DAIRY INDUSTRY - UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C.

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Dairy Herd-Improvement Association Letter Vol. 14, No. 5

May 1938

1938 DHIA PROVED SIRE LIST

The second printed list of sires proved in dairy herd-improvement associations will be available by the middle of June. The list will include the records of all sires tabulated by the Division of Dairy Herd Improvement Investigations between April 1, 1937 and April 1, 1938. The first printed list [1] includes the records of sires proved between November 1, 1935 and April 1, 1937.

A copy of the list will be mailed to each county agent, in those counties where dairying is an important agricultural enterprise, and enough copies will be mailed to each dairy extension specialist so that he can send one to each cow tester. Association members may then consult the list in the local county agent's office or in the hands of the local association tester. Dairymen who wish to obtain a copy for themselves can purchase it for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. They should ask for Miscellaneous Publication No. 315, "List of Sires Proved in Dairy Herd Improvement Associations, 1938."

One purpose of the list is to disseminate information on the sires proved in dairy herd-improvement associations, as widely as possible, to assist dairymen generally in selecting promising sires to head their dairy herds.

On the next page is the number of sires whose records are included in the 1938 list, by States and by breed.

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[1] Miscellaneous Publication 277, List of Sires Proved in Dairy Herd Improvement Associations, 1935-37. Copies of this list can be obtained by purchase from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy.

Number of Proved Sires Listed by States and by Breed

State	Breed						Total
	Ayrshire	Brown Swiss	Guernsey	Holstein	Jersey	Short-horn	
Arizona----------					3		3
California-------			9	15	4		28
Colorado---------				1			1
Connecticut------			5*	3	1		9*
Idaho------------			2	1	1		4
Illinois---------		1	4	40	9		54
Iowa-------------	2	9	11	49	8	1	80
Kansas-----------	1		1	14	4		20
Kentucky---------			1	13	25		39
Maine------------	1		3	5	5		14
Maryland---------				1			1
Michigan---------	1		9	9	12		31
Minnesota--------		4	12	13	2	2	33
Missouri---------				11	13		24
Montana----------				1			1
Nebraska---------				2			2
New Hampshire----	6		8	13	4	1	32
New Jersey-------			2	6*	1*		9*
New York---------	11	7	30*	158*	24*		230*
North Carolina---				1			1
Ohio-------------			3		3		6
Oregon-----------					2		2
Pennsylvania-----	7	3	50*	115	59*		234*
South Carolina---			2	2			4
Tennessee--------					3		3
Texas------------			1		3		4
Utah-------------				4	1		5
Vermont----------	5		9	12	40*		66*
Virginia---------			10	22	11		43
Washington-------			1	6	1		8
West Virginia----			1	1			2
Wisconsin--------			2	2	1		5
Total	34	24	174**	519**	237**	4	992**

*This number includes 1 or more sires proved in some other State as well as in the State indicated.

**Omitting duplication of sires.

TABULATIONS OF PROVED-SIRE RECORDS INCLUDED IN MISCELLANEOUS PUBLICATION NO. 315

	Number	Percent
Sires reported alive when proved	227	23
Sires reported dead when proved	672	68
Sires on which no reports were received	93	9
Total	992	100

Number of living sires, by age, by breed

Years of age	Breed						Total
	Ayrshire	Guernsey	Holstein	Jersey	B.Swiss	Shorthorn	
5	-	1	3	-	-	-	4
6	-	11	17	5	-	-	33
7	-	12	30	13	-	-	55
8	3	7	19	11	2	-	42
9	1	10	17	17	-	1	46
10	3	1	6	5	2	-	17
11	-	3	4	2	1	-	10
12	-	3	4	3	-	-	10
13	-	-	3	1	-	-	4
14	-	-	1	2	-	-	3
15	1	1	1	-	-	-	3
Total	8	49	105	59	5	1	227

Comparison of Production of Daughters of Sires with that of Their Dams

Sires:	Number sires	Average Production					
		Dams			Daughters		
		Milk	%	Fat	Milk	%	Fat
Reported living	227	9,137	4.1	370	9,466	4.1	390
Reported dead	672	9,341	3.9	361	9,074	3.9	356
Without reports	93	9,254	4.0	373	8,852	4.1	360
Total	992	9,289	3.9	364	9,145	4.0	364

Summary of Records of Sires that Increased or Maintained Production
Compared with a Summary of those that Decreased Production

Sires that:	Number sires	Number comparisons	Average Production					
			Dams			Daughters		
			Milk	%	Fat	Milk	%	Fat
Maintained or increased production	476	4,584	8,789	4.0	350	9,482	4.1	386
Decreased production	516	4,995	9,748	3.9	377	8,835	3.9	344
Total	992	9,579	9,289	3.9	364	9,145	4.0	364

Number of sires that increased or decreased butterfat production, grouped according to average production of the dams to which they were mated.--

Butterfat production range of dams (pounds)	Number of sires proved	Number of sires that increased production	Number of sires that decreased production
200-224	4	3	1
225-249	15	13	2
250-274	21	18	3
275-299	75	48	27
300-324	116	69	47
325-349	166	92	74
350-374	201	94	107
375-399	147	53	94
400-424	113	50	63
425-449	61	23	38
450-474	40	7	33
475-499	16	2	14
500-524	7	3	4
525-549	6	1	5
550-574	3	-	3
575-600	1	-	1
Total	992	476	516

Sire Records Grouped According to Butterfat Production Range of Dams

Number of sires	Number of comparisons	Butterfat production range of dams (pounds)	Average Production					
			Dams			Daughters		
			Milk	%	Fat	Milk	%	Fat
4	23	200-224	5,626	3.7	210	6,799	4.0	270
15	116	225-249	6,157	3.9	240	6,904	4.1	281
21	156	250-274	6,721	3.9	263	7,108	4.0	283
75	749	275-299	7,503	3.8	288	7,845	3.9	306
116	1,053	300-324	7,885	4.0	313	8,233	4.0	331
166	1,699	325-349	8,348	4.0	337	8,426	4.1	347
201	2,050	350-374	9,058	4.0	362	8,940	4.1	362
147	1,506	375-399	9,941	3.9	386	9,568	3.9	375
113	1,077	400-424	10,893	3.8	412	10,374	3.8	399
61	545	425-449	11,313	3.9	439	10,780	4.0	427
40	358	450-474	12,254	3.8	464	11,324	3.8	427
16	129	475-499	12,410	3.9	484	11,282	3.8	431
7	50	500-524	9,731	5.3	511	8,706	5.4	473
6	41	525-549	14,757	3.6	535	13,105	3.8	495
3	21	550-574	17,506	3.3	586	15,004	3.3	497
1	6	575-600	16,283	3.7	600	14,761	3.4	498
Total 992	9,579							
Average			9,289	3.9	364	9,145	4.0	364

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